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PRODUCTION EDITION

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News Briefs . . .

(Complete Stories Inside)

INCREASED PRODUCTION of phosphate for 1961 is announced by U.S. Phosphoric Products Division of Tennessee Corp. New facilities to increase firm's output by 50%. **Story page 2.**

●

INTERNATIONAL MINERALS & Chemical Corp. purchases two fertilizer plants in Minnesota. **Story page 2.**

●

PRODUCTION of ammonia, sulfuric acid, potash, phosphate rock, nitric acid, phosphoric acid was higher in May, 1960, than in corresponding month of last year. **Story page 2.**

●

NIAGARA CHEMICAL DIVISION opens new production facilities at Greeley, Colo. for pesticide production. **Story page 10.**

●

CALIFORNIA SPRAY-CHEMICAL will build new $22 million nitrogen plant at Ft. Madison, Iowa. Output expected to be 300 tons a day of ammonia; 150 tons prilled ammonium nitrate and 600 tons complex fertilizers. **Story on page 14.**

●

W. R. GRACE & CO. changes names of two of its chemical divisions. Former Grace Chemical Division will now be Nitrogen Products Division. **Story page 14.**

●

FOOD AND DRUG Administration clears use of systemic insecticide for use in cattle feed to control grubs. Act was first by FDA to clear use of systemic for this purpose. **Story on page 27.**

●

SUPERPHOSPHATE PRODUCTION rose considerably in May of 1960 over the same month of 1959, according to U.S. Department of Commerce report. **Story on page 2.**

●

CUBAN FERTILIZER PLANT owned by Armour & Co. was seized by group of armed militiamen on July 16. **Story on page 20.**

●

SOCONY OIL CO. creates new petrochemical operating division "to carry out broad activities in the petrochemical industry both in the U.S. and overseas." **Story on page 19.**

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PREPARING FOR BUSY SEASON—Joe Goodman and James Horn (left to right), employees of Elizabethtown Fertilizer Co., Elizabethtown, Ky., at work at new bagging equipment in plant. After bags are filled, conveyors take them to upper level for storage. Plant story page 6, this issue.

TVA Engineers Developing New Method Of Producing Diammonium Phosphate

A NEW PROCESS for producing granular diammonium phosphate is being developed by engineers of the Tennessee Valley Authority, according to an announcement on July 21 by Charles H. Young, manager of chemical engineering at TVA.

Mr. Young says that the process has an advantage over the previously developed crystallizer method in that it can use low-cost wet-process phosphoric acid without a purification step. "Also, the equipment required is more familiar to the fertilizer industry and should be less costly," he added.

"By taking advantage of chemical heat in the reaction of acid and ammonia, recycle rates and drying requirements are reduced below those of some competitive processes. The grade of the product depends on the purity of the phosphoric acid available, ranging up to 21-53-0 when electric-furnace acid is used. The process is being adapted to the production of various grades, some containing potash."

"The ammoniator is the key equipment in the process. Acid is partially preneutralized in a tank followed by completion of the ammoniation to diammonium phosphate in the ammoniator-granulator drum. Excess ammonia must be fed to the drum to produce diammonium phosphate; therefore, a scrubber is required to recover ammonia

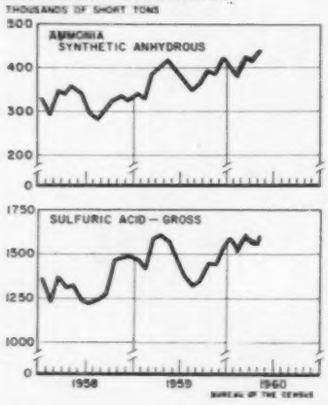
Turn to TVA page 21

May Inorganic Chemical Output 'Generally Higher'

USDC Report Compares Previous Month, Year-Ago Totals

WASHINGTON — May, 1960, production levels for industrially important inorganic chemicals in the U.S. were generally higher than those reported for the previous month and

PRODUCTION OF INORGANIC CHEMICALS



for the corresponding month in 1959, reported the Bureau of the Census, U.S. Department of Commerce.

Production of synthetic anhydrous ammonia during May was 434,043 short tons, higher than April of this year and May of 1959.

Ammonium nitrate output was down slightly from April, and was about the same as May, 1959. Total

Turn to **OUTPUT** page 27

Two Midwest Plants Acquired by IMC

CHICAGO—International Minerals & Chemical Corp. announced on July 18, the purchase of Welcome Agricultural Chemical Co.'s fertilizer plants at Welcome and Marshall, Minn.

IMC will continue these operations and will add two premium plant foods, Rainbow and Super Rainbow, to the product line.

R. A. Fancher, general manager of the Welcome plant, and Kenneth Verschnetse, general manager of the Marshall plant, will continue with IMC to supervise plant production and to handle local sales.

International Minerals & Chemical Corp., with headquarters in Skokie, Ill., suburban Chicago, is one of the nation's leading miners and processors of minerals and chemicals for agriculture, industry and the home.

IMC has 70 plants in the U.S., Canada and Mexico, including 27 fertilizer plants.

Expansion Program . . .

U.S. Phosphoric Products To Increase Output 50%

TAMPA, FLA. — Plans for an expansion of its phosphate processing facilities at Tampa, Fla., have been announced by the U.S. Phosphoric Products Division of Tennessee Corp. Company officials say the new facilities will increase the output of U.S. Phosphoric's products by some 50%.

Construction of the new facilities is expected to begin upon completion of design and engineering details, and the plant itself is scheduled to be completed by late 1961 or early in 1962, according to company spokesmen.

The expansion program provides for increased production of the firm's products including triple superphosphate, phosphatic fertilizer solution, and the company's 18-46-0 granular product marketed under the trade name of "Di-MōN."

The company has pointed out that the expansion project will enable it to maintain its position as a leading producer of high analys's phosphate products for the fertilizer industry.

Sulfuric Acid Output in 1959 Chalks Up 10% Increase Over 1958, U.S. Report Says

WASHINGTON — Production of sulfuric acid in the U.S. during 1959 totaled 17,608,608 short tons (100% H_2SO_4), marking an increase of 10% over the 1958 figure of 15,950,199 tons, according to a report prepared by the bureau of the census, U.S. Department of Commerce.

The bureau says that 89% of both the 1959 and 1958 output was produced by the contact process. Shipments (including interplant transfers) in 1958 totaled 10,348,017 short tons, or 11% more than the 1958 reported tonnage of 9,316,931.

Statistics for 1959 were compiled from data reported by 213 plants including those owned by the federal government, the report states.

Panogen Company Changes Its Name

CHICAGO—The name of Panogen Co., manufacturer of agricultural chemicals and a division of Morton Chemical Co., has been changed. It will be known as "Agricultural Division, Morton Chemical Co.," according to an announcement by J. E. Rich, president of Morton Chemical Co.

Potash Industry Achieves Record Output, Sales

WASHINGTON — Marketable production and sales of potassium salts in 1959 were the highest on record, and increased 11 and 6%, respectively, over 1958, according to reports from producers to the Bureau of Mines, U.S. Department of the Interior. Apparent consumption gained 6%. Stocks of potash (K_2O) in producers' hands at the end of 1959 were 26% lower than at the end of 1958.

Imports of potash materials to the U.S. increased 18% and were the highest since 1951. The principal supplying contries in 1959 were West Germany, France, Spain, Chile and Canada.

U.S. exports of fertilizer- and chemical-grade potash continued an upward trend which started in 1954 and reached a new high in 1959, increasing 13% over 1958. Forty-eight percent of the total exports went to Japan and 30% went to Western Hemisphere countries. Exports to New Zealand, Taiwan, Union of South Africa and Australia were only 17% of the 1959 total, but nevertheless were double the 1958 shipment to those countries.

New Mexico, California and Utah were the principal producers of marketable potassium salts in 1959, New Mexico supplying 92% of the total domestic output. Small quantities came from Maryland and Michigan. Production of manure salts increased in 1959 and was reported from New Mexico and Utah.

World output, the highest on record, reached 9.4 million short tons of K_2O in 1959, an increase of 7% over 1958.

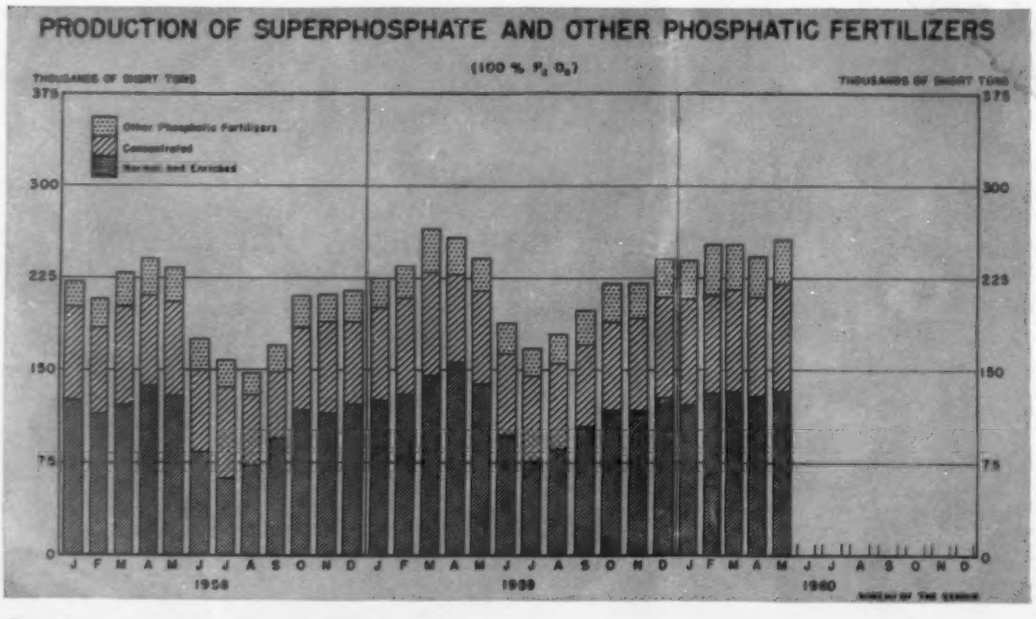
Superphosphate Production Up During May This Year

WASHINGTON—Production of superphosphate and other phosphatic fertilizers during May, 1960, amounted to 256,393 short tons (100% P_2O_5), according to a report just issued by the bureau of the census, U.S. Department of Commerce. The output for May, 1960, was considerably greater than that for the same month of 1959, which was 237,006 short tons.

Shipments of superphosphate and other phosphatic fertilizers during the month totaled 184,876 short tons, or an increase of 3% over the volume shipped during the corresponding month of last year. Stocks held by producing plants as of May 31, 1960, totaled 224,373 short tons, approximately the same as those held on April 30, 1960. These monthly figures (including percentage changes) are unadjusted for seasonal variation and number of working days.

The Department of Commerce explains that statistics contained in the report include figures for all plants known to have facilities for superphosphate and other phosphatic fertilizer materials manufacture, including government-owned plants. Quantities are expressed in equivalent short tons of 100% P_2O_5.

PRODUCTION OF SUPERPHOSPHATE AND OTHER PHOSPHATIC FERTILIZERS



Phosphate Rock Use, Production Sets Mark

WASHINGTON — Phosphate rock sold or used in the U.S. during 1959 set a new record, according to a report from the Bureau of Mines, U.S. Department of the Interior.

Mine production of phosphate rock last year increased 6% to 49.2 million long tons. Total marketable output also reached a new high, 7% above 1958. Increases were noted in Florida and the western states.

Sale and use of phosphate rock registed a gain of 9%. Florida and the western states had an 11 and 14% increase, respectively, while Tennessee dropped 8%. Apparent consumption was more than 13 million tons, or 8% more than the previous year.

Phosphate rock imports increased 29%, compared with 1958. Imports originated from Curacao (83%), Mexico (10%) and Makatea Islands (7%).

Estimated world production of phosphate rock increased 5% in 1959.

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FRED ARNOLD
is P.C.A.'s Sales Representative for Virginia, North Carolina and South Carolina. He received his education at the University of Alabama and Yale University, in addition to many years of experience in sales and management, all enabling him to better serve the fertilizer industry.

JOE SCROGGS
is P.C.A.'s Sales Representative for Tennessee, Western North Carolina and Georgia, has attended Piedmont College and received a B.S. in agriculture from the University of Georgia. Also qualifying him for his job are years of experience in agricultural chemicals and the teaching of vocational agriculture.

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Processing Losses in Increasing Menace

By Dale C. Kieffer*
Smith-Douglass Co., Inc.
Norfolk, Va.

MUCH HAS HAPPENED to the fertilizer industry since the end of World War II. Developments since that period that have brought increased emphasis on process efficiency and material recoveries in plants. Most anyone familiar with the history of the industry in this country will agree that the manufacturing processes have changed more in the past 15 years than in the 30 years previous.

During the pre-war era there was a gradual up-grading in the plant food content of fertilizers made possible by the availability of more concentrated raw materials, but the basic manufacturing process underwent only minor change—and at the outset of war the manufacturing process centered around the conventional batch mixers. The use of liquids was still in its infancy. Limited amounts of aqua ammonia, ammonia-ammonium nitrate and ammonia-urea solutions were available. The use of liquids was limited largely by prevailing recommendations. Early practice was to add 24 lb. of ammonia per 1,000 lb. of super (2.4 lb. per unit) with 30 lb. as a maximum recommended only in cold weather (3 lb. per unit).

The expansion in synthetic ammonia producing capacity to supply nitrogen to ammunition plants accelerated changes in fertilizer production techniques. Beginning in 1946 there was a widespread adaption of mixing facilities to make possible the use of anhydrous ammonia. Production of ammonia-ammonium nitrate solutions doubled and quadrupled.

In the fertilizer year 1958-59 the Commodity Stabilization Service of the USDA reports that 1,597,000 tons of nitrogen were available for fertilizer use in the form of liquids including anhydrous ammonia. This represented 58% of all of the nitrogen available to the fertilizer industry in that year. In 1941 nitrogen consumed in the form of liquids by the fertilizer industry amounted to 75,000 tons, and this was 17.00% of total consumption.

There have been other changes in the production of potash and superphosphates that have exerted great influence on fertilizer manufacture. The rapid expansion of the potash industry in this country during—and following—the war established muriate of potash as the primary source of K_2O in mixed fertilizers—and development of a triple superphosphate industry in Florida made concentrated phosphates an important source of P_2O_5 in the areas farthest removed from the phosphate mines. The magnitude of the increase in concentration of mixed fertilizers is illustrated in Table 1.

Increased freight rates, higher handling costs, pressure from state officials and experiment stations, and competition pushed the average plant food content of mixed fertilizers gradually higher. The industry found itself faced with a serious problem of mechanical condition. The elimination of conditioners, the use of more concentrated salts, some of which were much more hygroscopic, and the increased chemical reactions after the fertilizer left the mixer caused bag-set. But in a competitive industry someone is sure to try to do something about the troublesome mechanical condition. In the late forties a few companies turned again to granulation as an answer to the problem of mechanical condition, and that was the beginning of the troubles associated with plant process losses.

Fertilizer granulation was not new in 1948. English manufacturers had been granulating fertilizers for some time, and it had been tried in the U.S. on a small scale rather half-heartedly. But from that time until the present, granular fertilizers have practically taken over all the important consuming areas in this country with the exception of the Southeast.

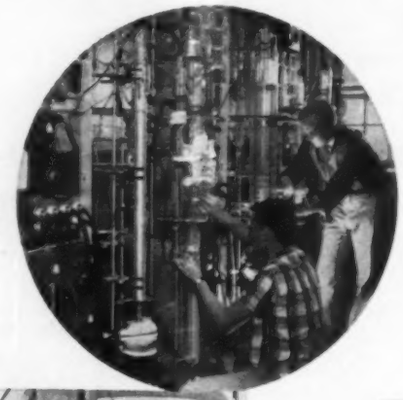
Manufacturing units which prior to that time consisted of an elevator, screen, mixer and possibly a cooler, now include elevators, screens, ammoniators, granulators, dryers, coolers and two or three stacks. In the old plants there were few places where plant food could be lost—in the modern plant there are several. The loss we are concerned with is the difference between the plant food bought and received and the quantity of N, P_2O_5 and K_2O sold in fertilizers.

In the first place, the plants are dealing with more concentrated materials, therefore, the loss of relatively small quantities represent more in terms of plant food. In the second place, the mixing unit has become a process in which nitrogen is fixed by chemical reaction—and the efficiency of the reactions have a great deal to do with the nitrogen losses, and the loss in available P_2O_5.

There is a constantly expanding use of liquids in the ammoniators and granulators with phosphates being fed as acid—sulfuric acid used to produce heat and to aid in granulation. All of the acids are generally neutralized with ammonia as anhydrous or ammoniacal solutions. We now produce in the mixer ammonium phosphate, ammonium sulphate, ammonium chloride and potassium nitrate, together with numerous side reactions.

Because of the generation of heat, steam and gases in the ammoniator-granulator, it must be vented and from these vents unreacted ammonia and volatilized compounds can be lost. This loss will vary from plant to

*From paper presented at fifth annual convention of National Plant Food Institute, Greenbrier Hotel, White Sulphur Springs, W. Va., June 13, 1960.



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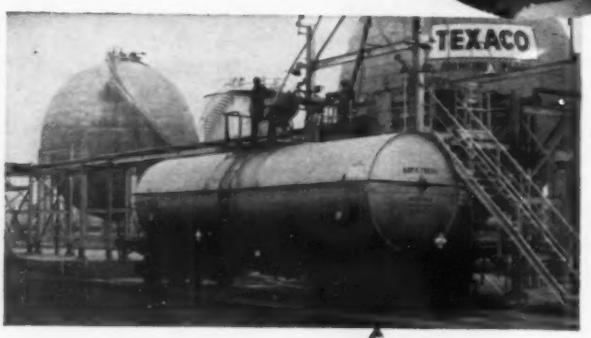

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Fertilizer Plants To Manufacturers

plant, depending on the ammoniation practices, design of the equipment, efficiency of scrubbers, etc.

Most modern granulating plants today include a dryer and the granules from the ammoniator-granulators are fed directly to a dryer that is either counter-current or co-current —depending on the opinions of the designer. Volatilized nitrogen compounds can be lost due to over-heating. Dust losses generally contain all three of the plant foods.

Dust from a fertilizer dryer is extremely difficult to collect and control. The nature of the reactions in the ammoniator-granulator are such as to produce very fine particles which adhere to produce the granules, but which tend to rub off when subjected to attrition. And, of course, unfortunately the granulating process is not 100% efficient so that about 30 to 40% of the dryer feed consists of oversize and ungranulated fines. The oversize is crushed and the fines are separated at the screens, and the crushed oversize and fines returned as recycle so that the dryer has another opportunity to over-heat and blow some of it out of the stack.

Most plants are equipped with coolers and, generally, the coolers are very similar to the dryer—but without heat. The losses here are largely as dust. Coolers were in existence on many of the mixing plants before the advent of granulation, so the cooler hardly represents an additional source of loss.

All fertilizers are formulated with some pre-determined moisture content. It is common knowledge that moisture is a critical factor in the storage qualities of both granular and non-granular fertilizers. In the granular plants, however, it is not uncommon to over-dry the product by as much as 1%, thereby producing an over-all material loss in this magnitude. Moisture is calculated as an ingredient in the finished product and, if it isn't in there, the plant will fall short of anticipated shipments.

There is no question about the use of liquids—and especially anhydrous ammonia—introducing a greater opportunity for nitrogen loss than would normally be expected with solid materials such as sulphate of ammonia, ammonium nitrate, urea, etc. Anhydrous ammonia, of course, is the cheapest form of nitrogen available to the industry, therefore, more loss can be tolerated.

There are always some handling losses between the bulk piles and shipping mills. In the last 15 years the front-end loader has become a standard piece of equipment in nearly all fertilizer plants. While it possibly offers one of the most economical methods for transporting bulk materials, it does not solve the problem of good housekeeping. Spillage in the working area has multiplied several times since the "Georgia Buggy" has been replaced with mechanical equipment. While this spillage is wasteful in the sense that it requires cleanup labor and reprocessing, it does not represent an important material loss because most of the spillage finds its way back to the sweeps pile.

The loss at the shipping mills largely centers around overweights on the bags. Within the past several years good automatic bag weighing devices have been developed. Several are remarkably efficient and accurate if given reasonably good maintenance and care. Nevertheless, the best mechanical equipment that has been developed can be consistently accurate only within reasonable tolerances.

In nearly all of the states in which substantial quantities of fertilizers are used, provision has been made for state control laboratories. The state control officials periodically publish the results of their determinations. The fertilizer industry is highly competitive and most companies are sensitive to excessive penalty reports. Nearly every manufacturing department makes a sincere effort to produce fertilizers that will never analyze below a reasonable tolerance of the guarantee.

It must be recognized that the sampling methods employed by the industry, and by the various states cannot, in the nature of things, be perfect. The analytical procedures, while good, are still subject to some variation. Since there are "unknowns" that must be taken into account fertilizers are deliberately overformulated in order to insure against unfavorable official determinations. This represents an intentional plant food loss.

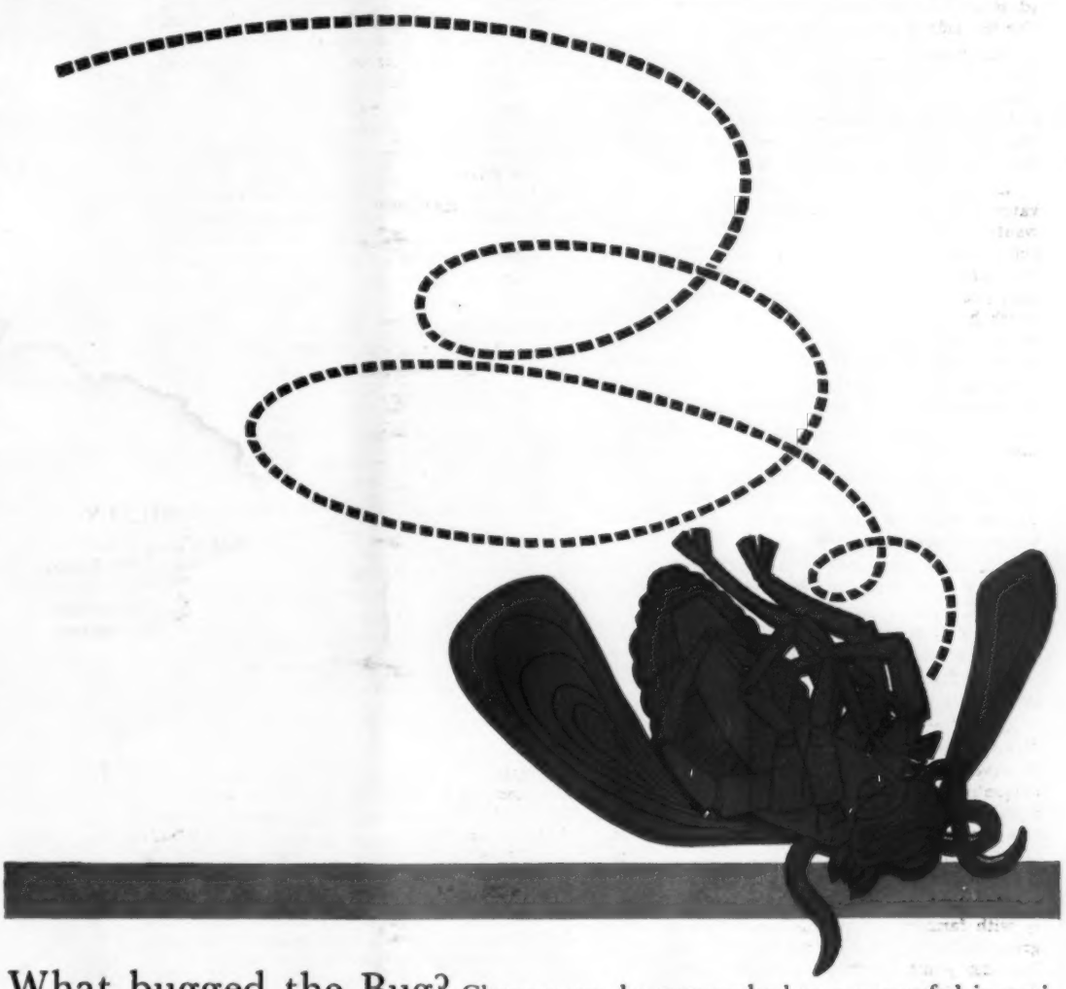
The TVA type continuous ammoniator is extensively used in granulating plants, however, it apparently has not been incorporated in many production units turning out only pulverized fertilizer. In granular plants it is used both as an ammoniator and a granulator. Since nitrogen losses are greatest in plants producing granular fertilizers, it could be reasoned that the old batch mixers are still the most efficient. This is hardly a fair assumption because more liquid, particularly anhydrous ammonia, is introduced along with acids in the granular plants to produce heat, and aid in granulation.

The conditions most favorable to granulation are not always ideal for best ammonia absorption, however. In general, this possibility is the most important reason for the difference

Turn to **LOSSES** page 21

TABLE 1. Increase in Concentration of Mixed Fertilizers

N		P_2O_5		K_2O		Total	
1941	1957-58	1941	1957-58	1941	1957-58	1941	1957-58
3.8	5.96	9.6	12.53	6.4	11.73	19.8	30.22



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Remodeled Fertilizer Plant Makes Production Profitable

By Al P. Nelson
Special Croplife Writer

WHEN the Elizabethtown Fertilizer Co., Elizabethtown, Ky., remodeled its plant recently, a number of production ideas were incorporated to bring about increased efficiency and a smoother-working facility.

A new, mechanical bagger (Superior Tank Co.) speeded up bagging from 7 to 14 bags per minute. Two lines of operation, one on each side of a central drive-in area, were set up. The right side of the plant where a one-ton Stedman mixer is located, is used for the production of fertilizer in bulk. The left side is used for the bagging operation.

Fertilizer in bulk is hauled with a front end loader to bins which have been enlarged to hold 1,000 tons each. It is possible to load out of each end of these 1,000 ton bins. This means that fertilizer can be taken out of one end while newly produced materials are being put in at the other.

A new "clod buster," hammermill and an elevator have also been installed. When the firm wants to bag fertilizer, it is brought by a front end loader from the bulk bins and put through the hammermill and bagged. From there it is conveyed to a second floor storage warehouse area, which has five conveyors. When the busy season arrives, bags can easily be placed from storage on these conveyors and loaded into waiting trucks.

"This arrangement saves a lot of time and handling during the busy season," reports L. K. Dutschke, who with W. O. White, owns the company.

"As the bags of fertilizer come up from the first floor they can be stacked between the conveyors where they are handy to load. The conveyors are also reversible.

"Our new setup enables us to produce our fertilizer in bulk and store it in the analyses which sell well," points out Mr. Dutschke. "We make 5-20-10, 4-12-8, 3-12-12, 10-10-10 and 5-10-15. All of these analyses sell well in this area."

Many farmers in the region use 5-20-10 on corn land, while tobacco growers like 5-10-15.

Corn farmers use a four year rotation plan. The average yield is between 60 to 70 bu. an acre. However, in one corn growing test where adequate amounts of fertilizer were used, eight farmers got more than 125 bu. an acre. Mr. Dutschke uses this example in his sales program, telling farmers it shows what good seed, and proper fertilization can do on good soil.

Mr. Dutschke says that his firm works closely with farmers and county agents. He spends a great deal of time with farmers talking over their fertilizer plans. In fact, the atmosphere of the Elizabethtown Fertilizer Co. office is very friendly. It is not unusual to find three or four farmers sitting there talking soil fertility with Mr. Dutschke.

"We like to have the farmers visit with us," he states, "for then we can help them work out a fertilizer program which will net them the greatest returns. Of course, we always take time out, too, to visit farmers whom we have not sold, or those who do not have time to come to our plant for a tour and a visit. Selling is so important these days. Many farmers need to have pointed out to them just what the right amount of fertilizer, according to a soil test, can do to increase crops."

Soil tests are handled through the county agent's office. Mr. Dutschke urges many farmers to have their soils tested. He and his men will even help a farmer take soil samples, if the farmer wishes this service.

"We like to have a customer start with us after having soil tested," says Mr. Dutschke, "for then he knows what the soil calls for. He knows, too, that we are not trying to sell him something he does not need. We know from experience that soil testing helps us sell more fertilizer. All farmers will not fertilize up to recommendations, but they inch up toward the ideal situation year after year."

This fertilizer plant employs three men during the winter and nine to twelve men during the spring and summer. The company is seven years old, and was founded by R. W. Water, a former partner of Mr. Dutschke. He bought out Mr. Water's interest a couple of years ago.

Joe Goodman is assistant manager of the plant.

"We buy our potash in June and July when prices are usually low, and thus we save about $150 per car," states Mr. Dutschke. "We try to buy most of our materials in big cars of 50-60 tons each, and so make extra savings that way."

Business has increased tonnage wise every year since the fertilizer plant was started, reports Mr. Dutschke. The company now plans an addition at the front of the present building. The addition

Turn to PLANT, page 23

GEARED FOR EFFICIENCY—New systems and equipment installed recently in Elizabethtown, Ky., fertilizer plant have brought about a number of economies. Above is one of two front end loaders operated by the company to carry mixed goods from bins to crusher before material is bagged. Charles Horn is operating the machine in photo.

Second photo shows rear of warehouse, left side of which is equipped for bagged goods load-outs connected to second floor conveyors. Bulk load-out area is at rear of building.

At right is interior view of second floor bagged goods storage. Filled bags are stored between rows of five conveyors, so when rush season arrives, bags can be loaded quickly on reversible conveyors and taken to door outlets and loaded on trucks.

FRONT SIDE of Elizabethtown Fertilizer Co. building, Elizabethtown, Ky. A new addition for store and offices is scheduled to be built soon, as indicated in the article.

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Equipment Leasing Said to Help Conserve Manufacturer's Assets

By Robert Sheridan

EQUIPMENT leasing is developing into an important means for fertilizer manufacturers to acquire new equipment. Production equipment on lease to American industry at the end of 1959 reached a total volume of $307 million. Of this, approximately $2.7 million was on lease to firms in the fertilizer industry. This represents a gain of about 70% in one year.

This boom in equipment leasing is not the result of a short-lived fad. Through leasing, a company is supplied with additional capital in the form of machinery and equipment, while its own cash is left free to work in the business. More working capital plus newest equipment plus certain tax-timing advantages add up to additional growth plus additional profits.

While leasing was originally a big business idea brought in during World War II, it soon spread to smaller and medium-sized businesses. In addition to larger profits, smaller companies found that leasing was a sort of "equalizer" which tends to help smaller firms compete with larger ones. Through leasing, smaller businessmen discovered that they, too, could avail themselves of the latest cost-saving equipment without depleting their working capital.

Businessmen lease equipment for one of several reasons:

1. Long-term financing is obtained without impairing a company's short-term credit position. Usually leasing offers longer terms than are available through other sources of funds. Since only the lease payments for the current year are shown on the balance sheet (with the remainder foot-noted), current ratios are only slightly affected. Thus companies have found that they can use short-term borrowing for current needs, while using long-term leasing to acquire the use of equipment.

2. The cost of equipment is paid out of earnings made during its use.

3. Leasing charges are legitimately deductible as operating expenses. This permits companies (a) to write off the cost of equipment more realistically, and (b) to replace equipment when business economics demand it.

4. Long-term financing is obtained through leasing without diluting the equity of owners or stockholders, or interference with management.

5. Companies can obtain through leasing the precise amount of financing needed (in the form of equipment). Thus a large company needing, for example, $521,658 worth of equipment would find it preferable to lease equipment rather than resorting to the bond market or an issue of stock in that odd amount. The example of the city of Boston may prove valuable to businessmen. The city recently announced that it had saved 23% of its interest costs by financing precise sums as they were needed, rather than larger round sums.

6. Leasing protects a firm against possible early obsolescence of equipment. If technical advances make it necessary to scrap the machinery in seven years, for example, the company will have already deducted the full cost of the machinery.

The questions most businessmen ask about leasing are mainly these: (1) does it actually work, and (2) how does it compare in cost with other methods of acquiring equipment?

The answers to these questions are well illustrated by the situation of a medium-sized midwestern fertilizer producer, who recently leased equipment worth approximately $35,000 in cost. Included were milling machinery, office machines, packaging and materials handling equipment, and air conditioning equipment.

The firm was in a position to obtain this $35,000 equipment in any way it chose: it could purchase for cash, it could obtain an installment bank loan to finance the equipment purchase, it could buy through conditional sales contract, or it could lease the equipment. Why it chose leasing is, of course, the point of this story.

On a comparison of the real costs involved, leasing offered this firm the greatest profit potential. This may not be true for all fertilizer manufacturers, but it is certainly true for many.

Leasing vs. Cash Purchase

This client is a soundly-run firm with sufficient liquid capital on hand to take $35,000 out of its working funds to buy this amount of equipment outright. The company also is a profitable one, with its sales volume expanding yearly. Its rate of profit on **working capital before taxes** is 45%, slightly under the industry average. The company was interested in keeping its working capital intact in order to earn the greatest potential profit. However, the company was willing to consider alternative methods of acquiring equipment. Actually, whichever method yielded the company the greatest net profit, would be most desirable.

Terms for purchase were cash, net 30 days; depreciation method used by the firm is sum-of-the-digits. The lease plan available covered a 10-year period, which is the average of the estimated useful life of the different pieces of equipment. It was broken into a three-year original lease term and seven one-year renewals. In the three-year original lease term, the company paid the original price of the equipment ($35,000) plus a small leasing charge. The seven one-year renewals were at the rate of 5% of the original purchase price of the equipment, or $1,750 a year.

The company's accountant then undertook an analysis to determine whether the greater total cash outlay under the lease plan (over the 10-year period) was offset by the profits earned on the working capital left free to work in the business.

(An objective study, including voluminous tables, covering this and other aspects of equipment leasing,

EDITOR'S NOTE: The accompanying article presents reasons why businessmen lease equipment, and offers comparisons between leasing and various other methods of purchasing equipment for fertilizer plant use. The author, Robert Sheridan, is president of Nationwide Leasing Co., Chicago. In presenting this article, like other features appearing in the publication, Croplife is not necessarily endorsing the information and viewpoint of the author. Rather, this material is published to provide readers with additional information on the subject of leasing.

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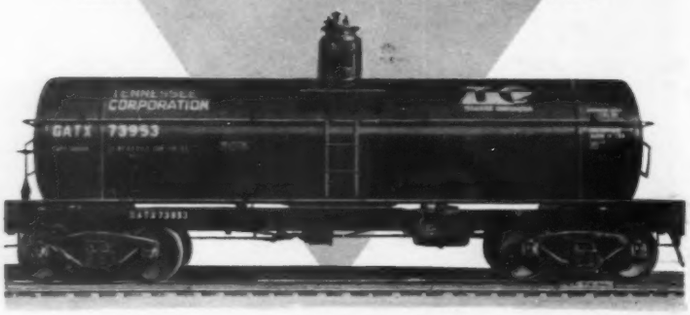

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has been published by the Foundation for Management Research. It is entitled: "The Pros and Cons of Leasing." Single free copies are available to executives by writing to the Foundation at 121 West Adams St., Chicago 3, Ill.)

Starting point of the analysis was the larger cash flow generated by the working capital retained in the business because of leasing. In the first year this amounted (in round numbers) to about $25,000. This cash excess recurred in smaller amounts in succeeding years and in the later years of the lease was replaced with a cash deficit.

Projecting these figures over the 10-year period, the company calculated the net profits it would earn by putting to work the additional working capital made available to it through leasing. The company also calculated the cumulative net profits earned on the cash excess and the after-tax retained net profits (which were added to the cash excess). Basis for the calculation was the company's average net profit ON WORKING CAPITAL, using the average of the previous five years. As mentioned above, this was 45% before taxes, or about 22% after taxes.

The outcome was that by leasing the equipment, instead of purchasing it for cash, the company would find itself about $37,000 ahead in round numbers in cumulative net profits after taxes at the end of the 10-year period of the lease. This is 106% of the original price of the equipment.

There is nothing mysterious in this, even though at first glance it seems fantastic that, after paying for equipment for 10 years a fertilizer manufacturer could wind up with cash equal to the original cost of the equipment. Nor is this the result of mathematical sleight-of-hand. It reflects a simple fact: when a company (any company) takes $35,000 (or any sum) out of its working capital and freezes it in equipment, the company gives up exactly the amount of profit the frozen capital would earn if used in the business. In the fertilizer industry, where working capital can earn profits at a favorable rate, this can come to a hefty sum over a 10-year period.

(The precise way in which this startling result occurs is explained in detail in the study developed by the Foundation for Management Reseach, cited above.)

All this is a simple, practical demonstration of a long-known principle of economics: profits are earned by the use of assets, not the ownership of them.

Leasing vs. Installment

Now cash purchase is not as common among medium and smaller manufacturers as among larger ones. More usual is purchase on conditional sales contract. This was also open to our client. Terms were fairly typical: 25% down payment with three years to pay the balance, with financing rate of 6% per year on the original $26,250 balance.

The same kind of financial projection was made as in considering cash purchase vs. leasing. Conclusion: if the equipment were leased, at the end of the 10-year period the company would be approximately $22,000 ahead in greater cumulative net profits than if it bought the equipment on conditional sales contract. This $22,000 represents 63% of the original price of the equipment.

To repeat, the "magic" lies in the way leasing permits working capital to stay in the business and earn profits.

Leasing vs. Bank Financing

So far, we have found that our client, after deducting all costs, could realize greater profits through leasing new equipment, than through either cash purchase or installment purchase of the same equipment. The final alternative available is purchase through a bank loan.

Banks are essential to all businesses, but in making equipment loans, banks almost never lend 100% of the value of the equipment. At best, a bank will lend only 75% of the value of the equipment—assuming that the equipment is a common variety of saleable machinery. Banks do not like to lend money on special equipment—such as fertilizer manufacturers often require—which has only a limited resale market, whereas leasing companies will lease any type of tailor-made equipment.

Also, banks cast a jaundiced eye on applications for long-term (more than one year) loans to acquire equipment. Only a small portion of a firm's borrowing from its banks can consist of long-term equipment loans. Fnally, businessmen who believe that the rate on a 36-month chattel mortgage on equipment is the same rate as a 90-day note have not been active in the money market.

This aside, our client was in a position to obtain bank financing for his equipment purchase, covering 75% of the value of the equipment; 25% had to come out of his working capital. Finance rate was 5% of the original balance for three years. Using the same calculations made above, the company found that at the end of 10 years it would be almost $21,000 ahead in greater cumulative net profits after taxes, if it leased the equipment instead of buying through bank financing. This is 59% of the original cost of the equipment.

In summary, this client found that by leasing his $35,000 worth of equipment he would be about $37,000 ahead in net profits as against outright cash purchase; about $22,000 ahead in net profits over instalment purchase, and about $21,000 ahead in net profits over purchase through bank financing.

In addition to this single benefit of lower net cost through leasing, this fertilizer manufacturer obtained other benefits, which are inherent in any leasing transaction:

1. The company's short-term credit position was not impaired by leasing. Only the lease payments for the current year are shown on the balance sheet as a liability, with the remainder footnoted. This is the proper accounting procedure.

2. The cost of the equipment will actually be paid out of earnings made during its use.

3. The leasing charges are legitimately deductible as operating expenses.

However, it should be said at this point that equipment leasing is not all beer and skittles. It is not the sovereign balm or the cure-all rem-

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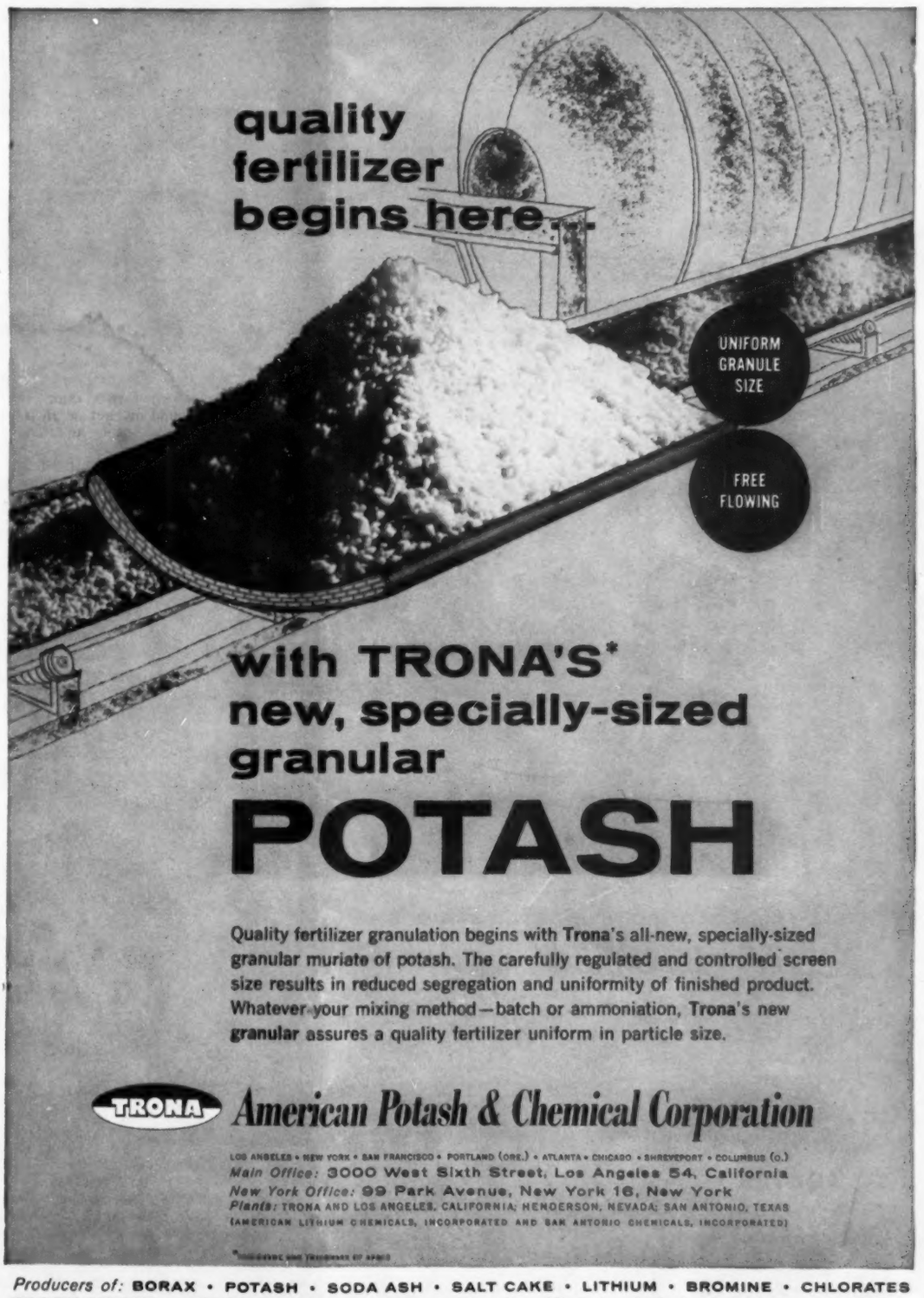
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Pros, Cons of Pesticide Use Discussed At Initial Meeting of California Group

SACRAMENTO, CAL.—The initial meeting of California Gov. Edmund G. Brown's committee on public policy regarding agricultural chemicals was told that California's tremendous farm production would not be possible without pesticides and other agricultural chemicals.

"Any question about the reputation and consumer acceptance of our farm commodities in any market, foreign or domestic, is of grave concern to California agriculture," William E. Warne, director of agriculture, told the group.

He said that the total sales of pesticides in California has been estimated at $100,000,000. For the fiscal year ended June 30, 1960, there were 14,867 different pesticide products registered with the Department of Agriculture by 1,174 firms.

Mr. Warne added that in 1959 commercial pest control operators treated 7,250,000 acres for pests and farmers treated 5,000,000 acres with their own equipment and labor.

For the benefit of the committee members, Mr. Warne enumerated the various lines of defense against misuse of pesticide chemicals in California. These included the Economic Poisons Article of the Agricultural Code, the Injurious Materials Law and Regulations, the licensing and supervision of agricultural pest control operators and aircraft pilots they employ, the Spray Residue Article of the Agricultural Code, and the Commercial Feedingstuffs Law.

Mr. Warne noted there is considerable difference of opinion about present tolerances on the amounts of pesticide residue allowable on food.

"Some," he said, "feel the present tolerances are unnecessarily restrictive and there also has been fear that the tolerances are not sufficiently restrictive."

Dr. Malcolm H. Merrill, California director of public health and a member of the committee, reviewed for his fellow members the perplexing combination of benefits and hazards which have accompanied the extensive use of chemicals in agriculture.

He estimated the benefits to California from the chemicals at hundreds of millions of dollars annually but noted the need for safe tolerances to protect the public while allowing liberal chemical use in controlling animal and plant pests.

Contrasted to the benefits have been such hazards as occupational poisonings, the direct ingestion or inhalation of chemicals by people and animals, water pollution and residues, Dr. Merrill said.

McKay McKinnon, Jr., director of the San Francisco district, Food and Drug Administration, told the group that "The development and ever increasing use of new, highly effective, and highly toxic insecticidal agents have imposed a heavy responsibility on those who recommend the use of these insecticidal agents and who undertake to work up spray schedules."

He added that "Their approach must be conservative and the harmful potentitalities of these products must never be overlooked or ignored."

Mr. McKinnon outlined the food and drug problem since 1906 and gave his general theory in solving the problem of tolerances.

"When improved scientific procedures reveal new facts," he said, "decisions may have to be changed. But if we have the best law it is possible to secure, if we give it the best administration possible, if we use the best scientific evidence available, we will safeguard the public health while securing the benefits of modern technology."

Speaking on behalf of consumers, Mrs. Helen Ewing Nelson, California consumer counsel, said:

"The housewife's fear of agricultural chemicals is a fear of the harmful, unknown and unseen. Her frustration arises from a feeling of utter helplessness to do anything on her own to protect herself and her family."

Dr. Emil Mrak, committee chairman and chancellor of the University of California at Davis, set Aug. 16 in Los Angeles for the committee's next meeting. It is scheduled at that time to begin developing its approach to the problem of residues.

OLDSTER DIES

CHARLESTON, S.C.—Funeral services were held recently in Charleston for Wade Hampton Logan, 83, chairman of the board of Logan-Robinson Co., and a figure in the fertilizer manufacturing field in South Carolina for 67 years. At the age of 16, Mr. Logan entered the business and his rise was steady.

Niagara Opens New Colorado Pesticide Plant

GREELEY, COLO.—Niagara Chemical Division of Food Machinery & Chemical Corp. has recently opened new production facilities in this city, announced Stuart Bear, manager. The new unit will produce a wide range of modern pesticides to meet the needs of farmers and growers in Colorado and Western Nebraska.

Says Mr. Bear: "In making the decision to open a plant in Greeley, Niagara recognizes the rising agricultural potential and importance of Weld County and surrounding areas. The new facilities will provide faster, more flexible service to the company's customers and will make possible custom blending of pesticides to meet local conditions which might arise."

The 10,000 sq. ft. plant will contain both dust mixing and liquid formulating facilities. These will be used in producing materials designed to control insects, weeds and crop diseases which each year plague Colorado and Nebraska farmers.

Among the products the plant will make are: Tedion dusts, Thiodan insecticide, ethion insecticide and Niacide fungicide.

The new Greeley plant is situated on a plot along the Union Pacific tracks at 423 18th St. In addition to its production facilities, the steel and concrete block structure contains sales offices to serve the two-state area. Daniel Sjoquist, a resident of Greeley and territory manager for Niagara, will head the new office while James Green will be production manager for the plant upon its completion. Mr. Green served at Niagara's Greenville, Miss., plant for the past several years.

Niagara Chemical has its headquarters at Middleport, N.Y. In addition to the new Greeley plant now under constrcution, the company operates some 14 other plants in the U.S. and two each in Canada and Mexico.

Monsanto Reports

ST. LOUIS — Monsanto Chemical Co.'s combined sales for the first six months amounted to $431,787,000, compared to $413,708,000 for the same period in 1959, the company reports. Such sales include those of the parent company, its domestic and foreign subsidiaries and one half of the sales of 50%-owned associated companies.

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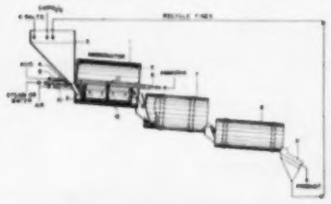
PRODUCTION PROCESS PATENTS

2,945,754

Granular Fertilizer from Calcium Metaphosphate. Patent issued July 19, 1960, to Travis P. Hignett, Sheffield, Alvin B. Phillips, and Ronald D. Young, Florence, Ala., assignors to Tennessee Valley Authority, Wilson Dam, Ala. A process for the production of a granular, non-hygroscopic, free-flowing fertilizer containing an ammonium salt, calcium metaphosphate, incompletely hydrolyzed metaphosphate, and calcium ortho-



phosphate which comprises introducing a solid fertilizer material comprising calcium metaphosphate into a rotating drum; maintaining a rolling bed of solid material within the drum; introducing a concentrated acid selected from the group consisting of sulfuric acid, phosphoric acid, and nitric acid and mixtures thereof beneath the surface of the rolling bed in the initial half of the drum; introducing an ammoniating fluid beneath the surface of the rolling bed in the final half of the drum in quantity substantially sufficient to neutralize the acid introduced; maintaining the temperature of the material within the drum in the range from about 160° to 215° F.; introducing water beneath the surface of the rolling bed; controlling the quantity of water introduced so that the total water introduced less that evaporated is not more than about two-thirds that required for complete hydrolysis of calcium metaphosphate fed; passing the bed of material through the drum at a rate of flow to provide a retention time in the drum of about 3 to 8 minutes; and withdrawing at least partially granulated fertilizer from the drum.

2,945,781

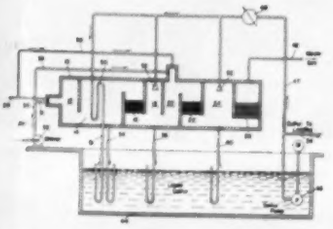
Method of Controlling Nematodes Employing Alakali Metal Salt of N-(n-Propyl) Dithiocarbamate. Patent issued July 19, 1960, to Philip H. Santmyer, Florissant, Mo., assignor to Monsanto Chemical Co., St. Louis, Mo. The method of controlling nematodes in soils wherein crops are growing which comprises applying to the said soil an alkali metal salt of N-(n-propyl) dithiocarbamate at a nematocidal level of application below the threshold of phytotoxicity level.

2,944,882

Process of Producing a Phosphate Fertilizer. Patent issued July 12, 1960, to Pieter J. van den Berg, Sittard, and Johannes W. M. Steeman, Beek, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands. A process of producing from raw calcium phosphate a fertilizer containing ammonium nitrate, calcium sulphite and dicalcium phosphate, comprising the steps of: treating the raw phosphate with nitric acid in amount sufficient to dissolve all the P_2O_5 and produce an acid decomposition liquor with a molar NO_3/CaO ratio within the range of 1.5—2; neutralizing the said acid liquor with NH_3 to obtain a suspension comprising precipitated dicalcium phosphate in a solution calcium nitrate and ammonium nitrate having a molar NH_3/NO_3 ratio of about 0.6; thereafter completely neutralizing said suspension by contacting it with a reagent selected from the group consisting of ammonium sulphite, ammonium bisulphite, and a mixture of NH_3+SO_2, the dicalcium phosphate in said suspension remaining substantially unchanged, and the calcium nitrate in the suspension being converted into NH_4NO_3 and $CaSO_4$; thereafter drying said neutralized mass, and recovering the dried mass forming the above mentioned fertilizer.

2,945,748

Apparatus for Converting Hydrogen Sulfide to Sulfur. Patent issued July 19, 1960, to Lloyd G. Magill, Berwyn, Pa., assignor to Sun Oil Co., Philadelphia, Pa. An apparatus for converting hydrogen sulfide to sulfur and which comprises a first combustion zone, a first heat exchanging zone, a first catlyst bed, a second heat exchanging zone, a second combustion zone, a second catalyst bed, a third heat exchanging zone, and a coalescer, the improvement which comprises a single horizontally elongated insulated vessel enclosing all of said elements longitudinally spaced along said vessel in the order named, and means in said vessel for admitting hydrogen sulfide and oxygen to each of said combustion zones, means for admitting a coolant to each of said first, second, and third heat exchanging zones, means for removing said coolant, means for removing molten sulfur from said vessel, and means for removing waste gas.



2,945,747

Apparatus for the Granulation of Fertilizers. Patent issued July 19, 1960, to Francis T. Nielsson, Morton Grove, Ill., assignor to International

Turn to **PATENTS** page 18

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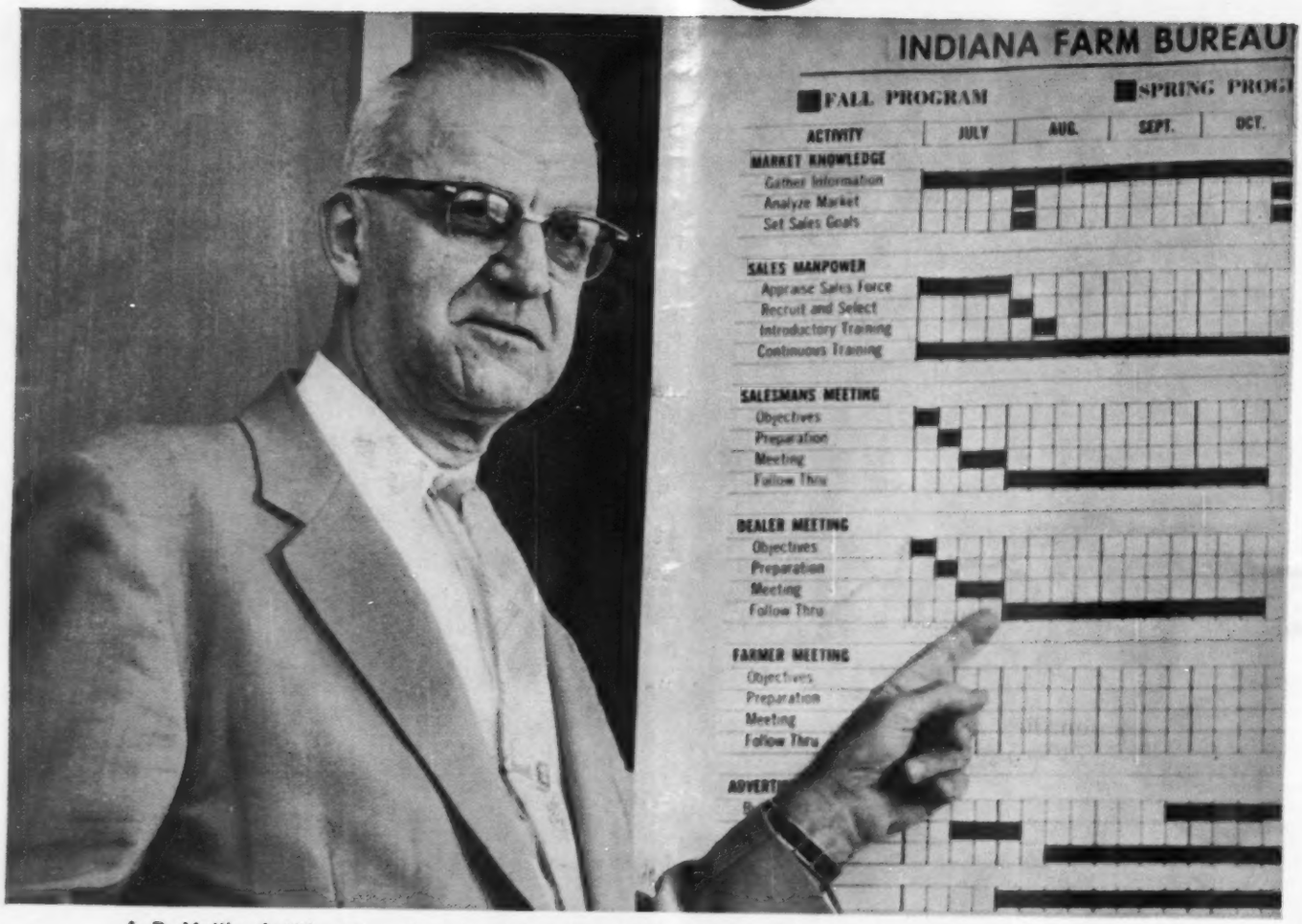
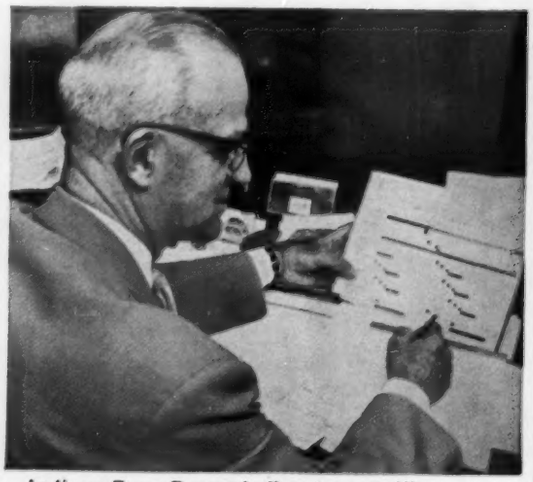


A. R. Mullin, fertilizer department manager, uses "Planalyzer" wall chart to coordinate everyone's work.

Mullin and Indiana Farm Bureau production manager Melvin Leach collect and interpret selling and marketing information . . . schedule additional conferences.

Well-organized sales meetings such as this were made possible through proper preparation and sufficient lead time.



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with his production, field service and advertising managers. Using the "Planalyzer" forms they blocked out sales seasons. Market research was scheduled. Next activities and promotion were planned to make the most of the selling season. Field sales meetings were scheduled. Purchasing, warehousing and manufacturing activities were geared to mesh with all other fertilizer department operations. Then after "Planalyzer" forms were completed, they were mailed to IMC for enlargement into a wall chart.

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At the end of the year Mullin stated, "We've always had a program, but this year it was on paper and organized. The "Planalyzer" helped coordinate everyone's work . . . encouraged planning and project scheduling. It also helped build a realistic sales goal. We had enough lead time so we didn't get into crash programs."

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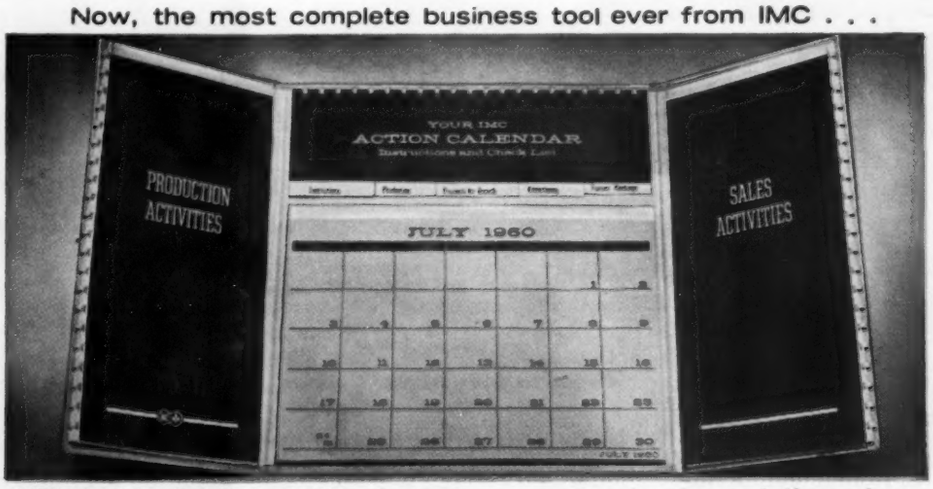

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FO-1-01

Calspray Announces it Will Construct New Nitrogen Plant at Ft. Madison, Iowa, Site

FT. MADISON, IOWA—Plans for the construction of a $22 million chemical fertilizer plant here, were announced July 25 by H. J. Grady, president of the California Spray-Chemical Corp.

Calspray is a wholly owned subsidiary of California Chemical Co. and Calchemical, in turn, is a subsidiary of the Standard Oil Co. of California.

Mr. Grady said the new fertilizer facility at Ft. Madison will be one of the nation's largest, employing approximately 200 persons at the start of operations.

The plant will produce nitrogen in various forms, among which will be complex pelleted fertilizers, prilled ammonium nitrate and anhydrous ammonia. An ammonia plant, a nitric acid plant and facilities for processing phosphate rock—all used in the complex fertilizer manufacturing process—are also included in the total operation.

Located on the Mississippi River, the new Calspray operation will have ready access to rail, water and truck transportation. Barges will be used for transporting much of the bulk supply and finished materials.

Production plans for the facility presently call for 300 tons per day of anhydrous ammonia, 150 tons of prilled ammonium nitrate and 600 tons of complex fertilizers daily. The principal marketing area will be in the North Central group of states.

"The vigorous growth of Midwest agriculture in recent years, and the success achieved by nitric phosphate plant foods in meeting the diversified requirements of crops are the main factors behind the company's decision to expand in this area," Mr. Grady said.

In the Midwestern area, Calspray district offices are located in Des Moines, Iowa, and Toledo, Ohio. The company operates insecticide plants at Omaha, Neb.; St. Louis, Mo.; Fennville, Mich., and Janesville, Wis.

LOUISIANA FIRM CHARTERED

MONROE, LA. — Farm Chemical Services, Inc., 603 Bernhardt Bldg., Monroe, has been granted a charter by Wade O. Martin, Jr., secretary of state, to deal in agricultural chemicals. Authorized capital stock is $25,000.

Newest member of the Davison team of granulated phosphates...

DAVISON Diammonium Phosphate

MAKES HIGHER ANALYSIS MIXTURES . . . than before—and makes them more easily. 16 units of highly soluble NITROGEN—Plus 48 guaranteed units of AVAILABLE P_2O_5.

FOR DIRECT APPLICATION . . . an exact 1-3-0 ratio—ready to use and sell . . . beautifully granulated.

FOR DRY MIXING . . . Davison Diammonium affords the dry blend manufacturer the advantages of an ammoniation plant. A balanced 1-3-0 ratio simplifies formula calculations.

READY FOR SHIPMENT . . . right now. Make this profitable new phosphate part of your operation. Call Davison in Baltimore today at SAratoga 7-3900.

W.R. GRACE & CO.
DAVISON CHEMICAL DIVISION
BALTIMORE 3, MARYLAND

Some formulations of ratios in higher analysis grades using DAVISON 16-48-0

Ratio Analysis	Pounds of Material Required			
	16-48-0	Ammo. Sul. (21%N)	Triple (46%APA)	Potash (60%K₂O)
1-1-1 14.4-14.4-14.4	602	917		481
1-2-2 11-22-22	917	349		734
1-4-2 8.5-34-17	1063		370	567
1-4-4 6.6-26.5-26.5	828		290	882

*Other higher analysis nitrogen materials (urea and ammonium nitrate) may be substituted in above formulations.

Analysis in the more popular ratios, such as 12-12-12, 10-20-20, 6-24-12, 5-20-20, can be manufactured by the addition of granular dolomitic limestone or other materials.

Grace Changes Names of Two Chemical Divisions

NEW YORK, N.Y.—W. R. Grace & Co. has announced name changes for two of its eight chemical divisions. Grace Chemical Division's new name becomes Nitrogen Products Division, while Dewey and Almy Overseas Division becomes Overseas Chemical Division.

Both name changes reflect the increased scope of the operations of the two divisions, the company says. In each case the personnel will remain the same.

Nitrogen Products Division operates an ammonia and urea plant in Memphis, Tenn., as its major chemical manufacturing activity. It has also been assigned the management responsibility for Federation Chemicals Ltd. in Trinidad, B.W.I. and Caribe Nitrogen Corp. in Puerto Rico. Both of these companies are producers of ammonia, ammonium sulfate and sulfuric acid, while Federation Chemicals also produces urea. In addition, Nitrogen Products Division also operates a number of ammonia distribution facilities in the midwestern part of the U.S.

The Overseas Chemical Division operates twelve plants in nine countries throughout the world. It has plans for increasing its overseas manufacturing activities in several lines including many of the products of the other Grace chemical activities in the U.S.

Nitrogen Products Division, formerly Grace Chemical Div., was the outgrowth of the move by the parent company toward diversification into the chemical industry in 1952. This division was Grace's first chemical operation which began with construction of an ammonia and urea plant in Memphis, Tenn.

In 1954 two mergers with chemical companies, Davison Chemical Corp. in Baltimore, Md., and Dewey and Almy Chemical in Cambridge, Mass., greatly increased the scope of Grace's chemical interests.

Completion Near For Calspray Office

SACRAMENTO — The California Spray-Chemical Corp. is nearing completion of its new Yuba City office and warehouse here.

In addition to the 8,400 sq. ft. of office and warehouse space, the project also involves an aqua converter for converting anhydrous ammonia, a mix plant producing various formulations of liquid fertilizers and tank storage facilities for ammonium nitrate and calcium ammonium nitrate solutions.

Joseph Holob, branch manager, said the move into the $115,000 plant will be completed by early fall.

Wins Advertising Awards

DALLAS, TEXAS — The Nitrogen Products Division of W. R. Grace & Co. was awarded three citations of excellence for its advertising at the 32nd annual conference of the First Advertising Agency Group in Dallas recently.

The Grace newsletters received the first award in the field of industrial direct mail. A series of advertisements featuring Grace feed urea received a citation of excellence in the field of advertising for farm, livestock and horticultural publications and a sales promotion manual produced by the Nitrogen Products Division received a citation of excellence in its category.

PANOGEN MOVES

CHICAGO — Panogen Co., a division of Morton Chemical Co., has moved its sales offices to the new Morton Salt Bldg., 110 N. Wacker Drive, Chicago 6. The phone number is FInancial 6-6760.

For you-- 3 types of specially sized POTASH

To help you make the best fertilizers...

Now Available!

FERTILIZER BORATE-65

...A NEW SOURCE OF BORON TO SAVE YOU MONEY!

Here's boron at lowest cost per unit! This highly concentrated source of B_2O_3 has a 178% borax equivalent. It can save dollars for you on costs of handling... storage... and transportation. It can also improve the physical condition of your mixed fertilizers.

Order Fertilizer Borate-65 now!

Here is potash you can depend upon—for highest quality—for maximum freedom from caking in storage and handling. Take your choice of three types; all readily available for immediate shipment. You'll find each to be ideally sized to meet your current manufacturing requirements.

For more than a quarter of a century, our potash products have kept pace with all the exacting specifications of the fertilizer industry. That's why you can count confidently on getting exactly the kind of potash you want... when you want it... from the U. S. Borax & Chemical Corporation.

Expert technical assistance is yours for the asking—without any obligation. Write today for technical data and shipping information.

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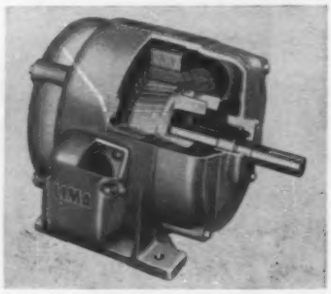
WHAT'S NEW

IN PRODUCTS · SERVICES · LITERATURE

To obtain more information about items mentioned in this department simply: (1) Clip out the entire coupon in the lower corner of this page. (2) Circle the numbers of the items of which you want more information. Fill in the name and address portions. (3) Fold the coupon double with the return address portion on the outside and fasten the edges with a staple, cellophane tape or glue. (4) Drop in the mail box.

No. 9203—Redesigned Motors

Lima Electric Motors Co., Inc., announces a redesigned Type RS drip-proof general purpose motor, rerated to meet new specifications and featuring fully seasoned cast iron frames with integrally cast feet to assure high rigidity in mounting. The motors are available in ratings from 1 to 150 h.p.; frame sizes 182 through 505. Other features, company literature says, include solid die cast rotors with



dual integrally cast cooling fans and dynamically balanced rotor assembly. The motors are Mylar insulated throughout. Accurately machined registers and bearing fit in the cast iron end bells. Specially designed steel baffle plates, deeply drawn, are provided in the end bells for extra protection to the windings and coils, the company says. Drip-proof enclosure provides protection against dirt, flying chips and dripping liquids and is furnished throughout the entire frame size range. Double width sealed ball bearings require no lubrication. Diagonally split cast aluminum connection boxes are equipped with cadmium plated cover screws. The motors operate continuously at a rated temperature rise of 40° Centigrade. They are available for three or two phase, in all standard frequencies and commercial voltages below 600, the company says. For details, check No. 9203 on the coupon and mail.

No. 9224—Storage Structure Bulletin

The availability of an information bulletin on modern storage structures has been announced by Sprout, Waldron & Co., Inc. The bulletin covers a variety of designs for storage of animal feeds, flour, food, chemical and industrial products. Illustrated in the bulletin are bolted steel storage structures, square type storage tanks, live bottom storage bins, and a variety of special bins for specific applications. The bulletin includes tabulated data giving diameters, heights and capacities for a wide range of structures. For details, check No. 9224 on the coupon and mail.

No. 9204—Locking Wedge Mount

Patent applications on a "Locking Wedge Mount" for rotary vibrators, designed to eliminate "creep-out" problems, have been filed by Martin Engineering Co. The locking wedge mount engages securely in the female on hopper car chutes without the need for blows from a heavy sledge, the company says. The positive lock-in of the wedge mounting

assures better transmission of vibration, the company says. Removal of the mount is accomplished with a 2 lb. hammer swung horizontally, driving the key back into an appropriate slot, where compound wedge action causes separation of the locked male and female mount. The mount weighs 25 lb. For details, check No. 9204 on the coupon and mail.

No. 9205—Bulk Handling Folder

A six-page folder (No. 2721) describes the three types of Link-Belt Co. "Jetslingers." According to the company, Jetslingers are machines equipped with short, high-speed belt conveyors for hurling free-flowing

bulk materials into areas inaccessible by other mechanical means. The folder describes and illustrates both the suspended, swiveling and wheel-mounted units which are used for hurling material into storage in warehouses, boxcars, bins or on the given. For copies, check No. 9205 on the coupon and mail.

No. 9233—Publication On Switches

A "How Others Do It" publication containing ideas submitted by plant engineers and electricians showing how they've used snap-action switches to increase production efficiency, has been released by Micro Switch, division of Minneapolis-Honeywell Regulator Co. Illustrated by drawings and photographs, the publication contains six methods which can save man-hours, protect operators and machinery and eliminate waste, the company says. The lead story describes how a large Midwestern terminal saved money which had been previously lost through grain intermixing, by installing 64 precision explosion-proof switches. For copies, check No. 9233 on the coupon and mail.

No. 9225—Motor Application Guide

The Century Electric Co. has issued a 1960 motor application guide. The guide is a 16-page bulletin (bulletin 270B) which outlines Century motor characteristics and includes up-to-date information on Century motor designs. Guides are available by checking No. 9225 on the coupon and mailing to this publication.

No. 9227—Coding, Marking Unit

Thomas Engineering Co. announces the Model 603 Teko Coder, which allows production coding, marking and printing in three colors at once. The machine prints a legend 3 in. high and up to 15 in. long, using as its ink supply three 1 in. Porelon plastic rollers. By varying the colors of Porelon used, packagers may have simultaneous three-color printing. The Porelon plastic cylinders of the coder hold enough ink in suspension for printing of up to 150,000 legends.

These rollers eliminate the need for fluid inks, solvents, ink fountains and reservoirs, transfer rollers and the problems of their maintenance. For more information, check No. 9227 on the coupon and mail.

No. 9230—Bag Holder Bulletin

A bulletin describing the "Universal Bag Holder" is being offered by Richardson Scale Co. Available in either manual or air-operation, the units will hold burlap, cotton, paper or lined bags without danger of slipping, the company says. Eight pictures illustrate the grip action of the bag holders in open and closed positions. Also pictured is an air control unit for the air-operated bag holder on a slip-on spout for manual filling of small bags. A reference table lists the 10 sizes of the holders and sizes of bags adaptable to each. For copies, check No. 9230 on the coupon and mail.

No. 9236—Expanded Line

The addition of two new sizes to its line of type "KO" vibrators has been announced by the Cleveland Vi-

brator Co. The one-piece air vibrators keep materials flowing from bins, chutes and hoppers, the company

Send me information on the items marked:

- ☐ No. 9203—Redesigned Motors
- ☐ No. 9204—Locking Wedge Mount
- ☐ No. 9205—Bulk Handling Folder
- ☐ No. 9224—Storage Structure Bulletin
- ☐ No. 9225—Motor Application Guide
- ☐ No. 9226—Dust Separator Bulletin
- ☐ No. 9227—Coding, Marking Unit
- ☐ No. 9228—Conveying System Brochure
- ☐ No. 9229—Blower Unit
- ☐ No. 9230—Bag Holder Bulletin
- ☐ No. 9232—Conveyor Carrier
- ☐ No. 9233—Publication on Switches
- ☐ No. 9234—Truck Scale Bulletin
- ☐ No. 9236—Expanded Line

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CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

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P. O. Box 67

Reader Service Dept. Minneapolis 40, Minn.

says, and the one-piece construction eliminates unnecessary bolts, an end plate and a mounting plate. Air consumption is also less, the company says. The line now includes a 1⅝ in. and 5 in. size with long stroke, heavy duty pistons in the larger models. Cylinders are of steel or aluminum. All units can be equipped with automatic lubrication and air filter units. For more information, check No. 9236 on the coupon and mail.

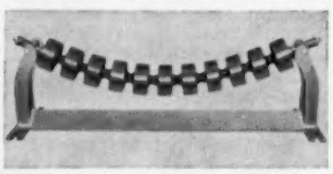
No. 9226—Dust Separator Bulletin

"Dual-Clone Dust Separators" are described in Bulletin D-20 released by the Day Co. The eight-page bulletin includes performance data, installation photos, selection and dimension charts for the units. The Dual-Clones utilize the basic prin-

ciples of dust separation by cyclonic action plus the Day designed internal "skimmers" which produce a two-stage separator within the Dual-Clone collector, the company says. For copies, check No. 9226 on the coupon and mail.

No. 9232—Conveyor Carrier

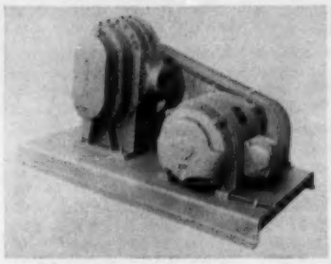
Stephens - Adamson Manufacturing Co. announces the development of a catenary conveyor carrier, known as the "Flexiroll," which provides true catenary suspension for the conveyor belt under all load conditions. The carrier features a high tensile spring steel "dead shaft" to which is mounted a mild steel trunion and a shock absorbing compression spring, the company says. The shaft has an initial set providing a trough which enables



the most rigid of belts to make contact with the face of all rollers when the belt is running under all load conditions. Other features listed by the company include: Carrier rollers resist reaction to corrosive, abrasive, greasy, oily and combustible materials; natural flexing action of the carrier reduces material breakage, spillage and material build-up, and the all steel jig welded frame is self-cleaning. Check No. 9232 and mail for details.

No. 9229—Blower Unit

A compact packaged blower unit has been introduced by Sutorbilt Corp. The unit comprises a Sutorbilt blower mounted on a common base with drive, and both single and double stage units are available. For special applications, a sanitary base can be attached. The unit, the company says, is suitable for use wherever an air supply does not currently



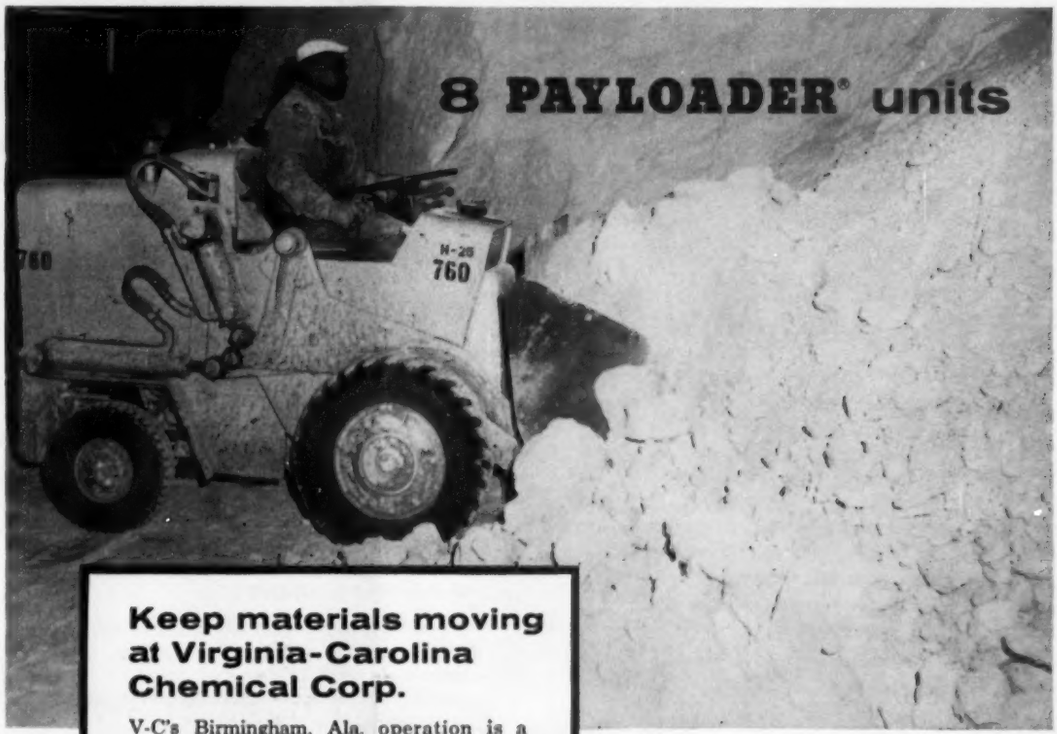
exist, or where there is a need to increase air supply. It is available in capacities from 1,500 cfm. at three psi. to 450 cfm. at 10 psi., covering a horsepower range from ½ to 40. The blower is a positive pressure rotary blower with wide face herringbone gears and specially-designed timing hub to simplify field adjustment. Complete information is available by checking No. 9229 on the coupon and mailing.

No. 9234—Track Scale Bulletin

Cardinal Scale Manufacturing Co. announces the publication of Bulletin No. B-116-MC, describing the all-steel fabricated Murphy-Cardinal Railway Track Scales. The units are designed and manufactured in accordance with A.R.E.A. specifications, the company says, for installation with either full floating, rigid concrete, timber or steel plate deck, and are equipped with double link suspension. The double link suspension eliminates platform shock, saves wear and tear on the pivots and bearings and prolongs the useful life of the scale, the company says. The scales are manufactured in standard capacities of 120 tons through 200 tons, with platform sizes of 50 ft. by 10 ft. through 110 ft. by 10 ft. Other platform sizes and capacities to 750 tons can be supplied as special units. For copies of the bulletin and additional information, check No. 9234 on the coupon and mail.

No. 9228—Conveying System Brochure

Air conveying systems for the bulk handling of powdered or granular materials are described in a new brochure published by Flo-Tronics, Inc., designer and manufacturer of material handling systems and controls. The Flo-Tronics publication describes the numerous variations possible in the engineering of air conveying systems, including completely automated and programmed process controls. It is illustrated with diagrams showing typical equipment and systems arrangements. For details, check No. 9228 on the coupon and mail.



4,500 lbs. of breakout power easily digs full bucket loads of hard super phosphate.

Keep materials moving at Virginia-Carolina Chemical Corp.

V-C's Birmingham, Ala. operation is a complete wet-mix manufacturing facility and includes a sulphuric acid plant. Eight "PAYLOADER" units are used for all phases of material handling, including the charging of sulphur to the melting vat, the moving of railroad cars, unloading potash from box-cars and in-process handling.

J. F. Lotz, Plant Superintendent says of his two newest units, "The Model H-25 'PAYLOADER' units are versatile and fast in all-around plant operations. They have twice the delivery capacity of the older Model HA's, and are faster in the storage pile."

Speed, capacity, maneuverability and ease of operation are combined in the H-25 for big production all day long. With only 6-ft. turning radius, it features 2,500 lb. operating capacity, power-shift transmission, torque-converter drive, power-steering, power-transfer differential and fast, powerful hydraulic bucket control. Closed, pressurized hydraulic system plus filters and seals throughout the machine assure effective protection in dusty conditions.

A nearby Hough Distributor is ready to show you what a "PAYLOADER" can do for your bulk materials handling.

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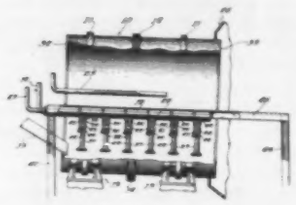
☐ Send data on H-25 "PAYLOADER"
☐ Larger models — to 12,000 lb. operating capacity

Name.....
Title.....
Company.....
Street.....
City.....State.....

PATENTS

Continued from page 11

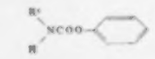
Minerals & Chemical Corp., Skokie, Ill. An apparatus for the preparation of granular ammonia-containing fertilizer comprising in combination a rotary cylindrical drum having open



ends, two retaining rings singly disposed at the ends of the drum and along the axis thereof, a stationary ammonia manifold disposed within the drum adjacent to and parallel to the longitudinal axis thereof, said ammonia manifold being closed at one end and communicating at the other end with a valved conduit adapted to introduce ammonia-containing fluid into the ammonia manifold at a controlled rate, a stationary acid manifold disposed within the drum adjacent and parallel to the ammonia manifold, said acid manifold being closed at one end and communicating at the other end with a valved conduit adapted to introduce acid into the acid manifold at a controlled rate, said ammonia manifold and said acid manifold each having a length substantially equal to the length of the drum between the retaining rings, and means for passing a current of air through the drum, the improvement which comprises an ammonia manifold provided with a series of orifices on the underside thereof, each orifice being positioned substantially equidistant from adjacent orifices, the area of orifices in the central portion of the ammonia manifold being larger than the area of the orifices in each end portion of the ammonia manifold, a series of ammonia supply conduits depending from the ammonia manifold positioned perpendicular to the ammonia manifold and parallel to each other, the longitudinal axis of each ammonia supply conduit forming an angle of between about 30 and about 60° with a vertical diameter of the ammonia manifold, one end of each ammonia supply conduit communicating with an orifice in the ammonia manifold, the opposite end of each ammonia supply conduit being open and positioned adjacent to the inner wall of the drum, said opening being positioned substantially in the direction of rotation of the drum, an acid manifold provided with a series of orifices on the underside thereof, each orifice being positioned substantially equidistant from adjacent orifices, the area of said orifices increasing from the feed end of said drum to the discharge end of said drum, a series of acid supply conduits depending from the acid manifold positioned perpendicular to the acid manifold and parallel to each other, one end of each acid supply conduit communicating with an orifice in the acid manifold, the opposite end of each acid supply conduit being open and positioned adjacent and above the open end of an ammonia supply conduit.

2,945,780

Synergistic Insecticidal Compositions. Patent issued July 19, 1960, to Howard A. Jones and John A. Garman, Baltimore, Md., and B. C. Dickinson, Lyndonville, N.Y., assignors to Food Machinery and Chemical Corp., New York. The method of killing insects which comprises applying to the insects and their habitat a synergistic insecticidal composition comprising O,O - dimethyl S - (1,2 - dicarbethoxyethyl)dithiophosphate, and an organic carbamate ester of the following general formula



wherein R' is selected from the group consisting of ethyl, isopropyl, butyl, n-butyl, tert-butyl and dodecyl radicals, and wherein said components are present in the ratio of about two parts of said carbamate per part of said dithiophosphate.

2,945,752

Control of Wild Oats. Patent issued July 19, 1960, to Dorsey R. Mussell, Clare, Mich, assignor to The Dow Chemical Co., Midland, Mich. A method which comprises applying to and mixing with soil infested by the seeds of wild oats, a growth-inhibiting amount of 1,2,4,5-tetrachlorobenzene.

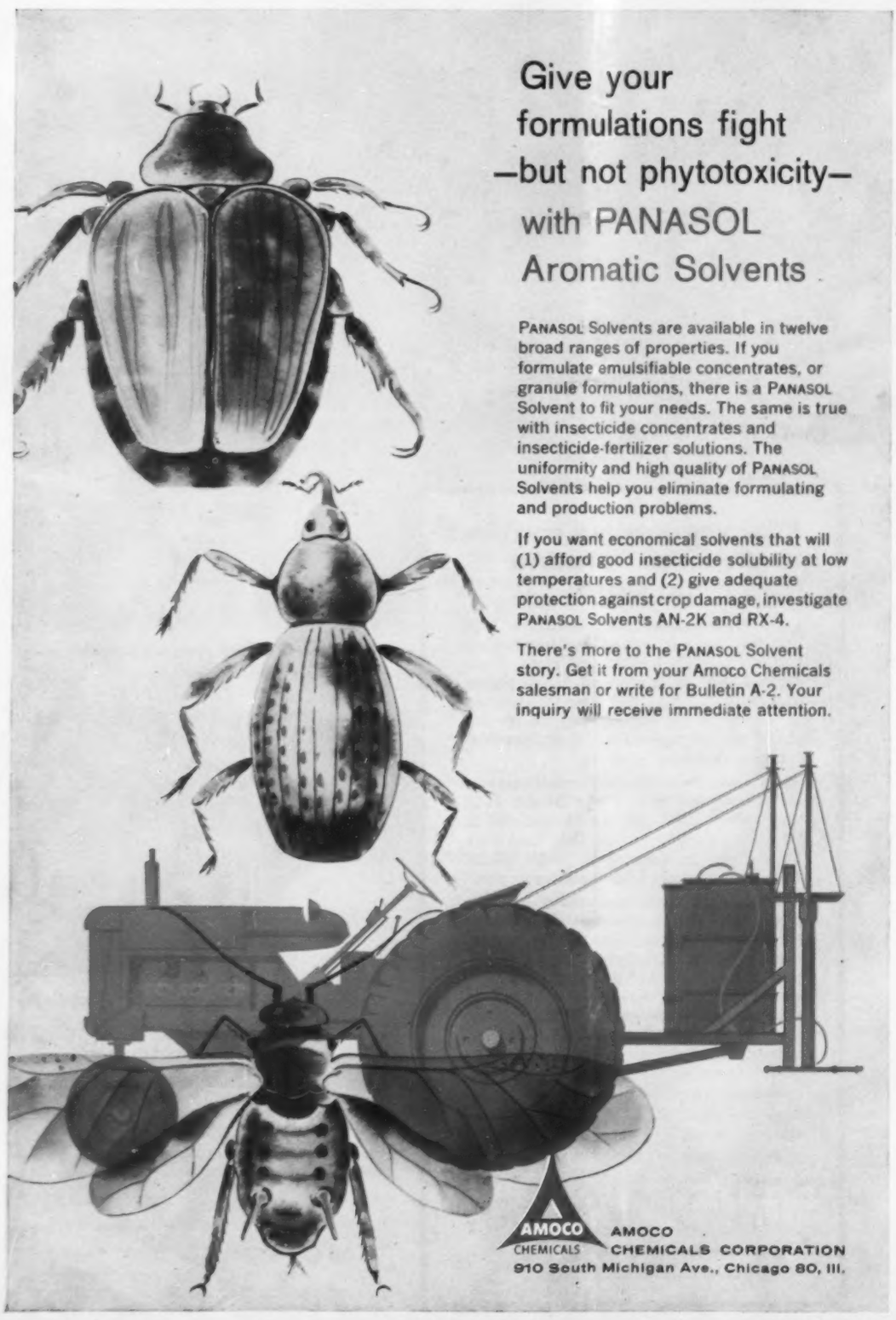
Western Group Elects Officers for 1960-61

RENO, NEV.—The annual meeting of the Western Society of Crop Science was held here July 11-13.

J. K. Patterson, Washington State University, was elected president; Wilson H. Foote, Oregon State College, vice president, and Wyman E. Nyquist, University of California, secretary-treasurer.

Outgoing president was Oliver F. Smith, agricultural research service, University of Nevada.

University of California, Davis, will host the 1961 meeting.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Aromatic Solvents
PANASOL Solvents are available in twelve broad ranges of properties. If you formulate emulsifiable concentrates, or granule formulations, there is a PANASOL Solvent to fit your needs. The same is true with insecticide concentrates and insecticide-fertilizer solutions. The uniformity and high quality of PANASOL Solvents help you eliminate formulating and production problems.
If you want economical solvents that will (1) afford good insecticide solubility at low temperatures and (2) give adequate protection against crop damage, investigate PANASOL Solvents AN-2K and RX-4.
There's more to the PANASOL Solvent story. Get it from your Amoco Chemicals salesman or write for Bulletin A-2. Your inquiry will receive immediate attention.
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Socony Oil Creates New Petrochemical Operating Division

NEW YORK — Socony Mobil Oil Co., Inc., recently announced creation of Mobil Chemical Co., an operating division for carrying out broad activity in the petrochemical industry both in the U.S. and overseas. Named president of the new organization was Paul V. Keyser, Jr., senior vice president of the parent company.

The move was described by Albert L. Nickerson, president of Socony, as being "a good deal more than a reorganization." He said the company needed a "flexible organization to concentrate exclusively on profit-making potentials in chemicals." The president did not state specifically what products the company might make, but observed that "no avenues are closed."

The announcement stated that the company is gearing for intensified effort in the chemicals field. Mobil Chemical Co. will not be limited as to types of products, it was stated.

The new company will be responsible for major petroleum chemicals produced at or near Socony Mobil facilities now in existence or under construction. This will include the world's largest high purity ethylene plant now being built at Beaumont, Texas. The plant will have an annual capacity of 380 million pounds of ethylene when completed in 1961, and will form the hub of a chemicals complex with other companies erecting plants to use its products.

Mobil Chemical Co. will be responsible for Socony Mobil's petroleum additive business and for other specialized chemical products.

New Storage Facilities For Mid-South Chemical

MEMPHIS, TENN. — Mid-South Chemical Corp. has announced a new 9,550-ton storage tank to be built to hold anhydrous ammonia. According to Ellis T. Woolfolk, president, the new facility will cost $585,000, will be 106 feet in diameter and 70 ft. tall. Contractor for the installation is Chicago Bridge & Iron Co.

The new terminal will be located on President's Island, available to water, rail and highway transportation. The addition of the new tank will give Mid-South a total storage capacity at Memphis of 11,000 tons of ammonia. Construction is expected to be completed by the end of 1960.

Mid-South serves Texas, Louisiana, Mississippi, Arkansas, Alabama, Tennessee, Kentucky, Missouri, Indiana, Illinois and Iowa.

Funds for Pesticide Research Awarded

BERKELEY, CAL.—Donations totaling $72,676.18 were reported in June by the University of California for research on agricultural chemicals.

The great bulk of the money, over $64,000, was given to the Davis campus. Gifts there included $24,999 for study of the biochemistry and analyses of insecticides and their breakdown products, and $10,472 for research on the biochemistry of antibiological activity. Both gifts were from the U.S. Public Health Service.

Some $3,200 was given to the Berkeley campus, $2,100 to the Los Angeles campus, and $3,000 to the Riverside campus.

RETIRED OFFICIAL DIES

NIAGARA FALLS, N.Y.—J. Herbert Babcock, 68, a former director and vice president of Hooker Chemical Corp., died July 16 at Niagara Falls, N.Y., following an illness of three months. Mr. Babcock had been associated with Hooker for 41 years when he retired in April, 1957. He joined the company's Niagara Falls plant in 1916 as a research chemist.

AOAC 1960 Award to Jonas Carol, FDA

WASHINGTON—Jonas Carol, deputy director of the division of pharmaceutical chemistry, Food and Drug Administration, has been selected to receive the 1960 Harvey W. Wiley Award of the Association of Official Agricultural Chemists. This award was established in 1956 to honor the father of the original Pure Food and Drug law and a founder of the association. The annual award, consisting of $500, is presented to a scientist who has made an outstanding contribution to the development of methods for the analysis of Food, Drugs, Cosmetics, Feeds, Fertilizers, or Pesticides, or for use in general analytical chemistry.

Announcement was made by Dr. John B. Smith, State Chemist, Agricultural Experiment Station, Kingston, R.I., president of the Association of Official Agricultural Chemists.

IMC Executives on European Junket

CHICAGO—Fourteen executives of International Minerals & Chemicals Corp., and their wives, are making a 15-day, 5-country tour of Western Europe as part of President Eisenhower's People-to-People Program for building friendships abroad.

The production and sales executives from all over the nation were chosen for outstanding performance to represent the corporation in Europe. The tour, Aug. 1 to Aug. 15, sends the "Good-will ambassadors" to England, France, The Netherlands, West Germany and Italy.

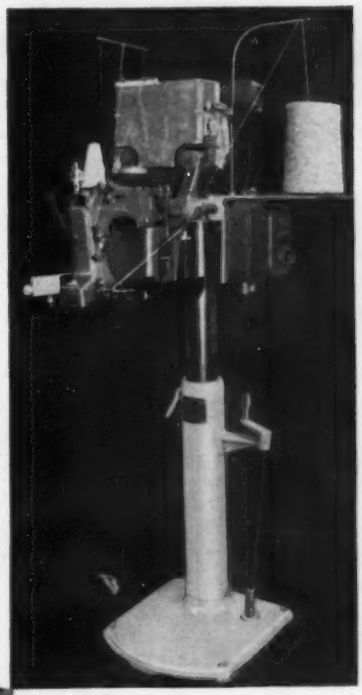
Heading the party from IMC's Skokie headquarters are Anthony E. Cascino, marketing vice president, and E. C. Horne, sales manager of the materials department in the Agricultural Chemicals Division.

Other members of the party are:

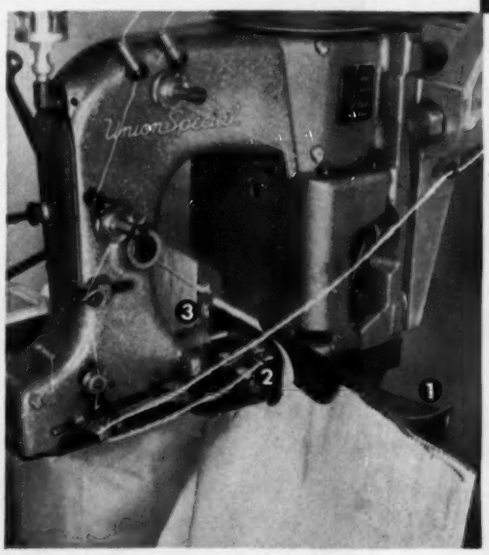
William W. Chadwick, regional sales manager, Ho-Ho-Kus, N.J.; Gerd W. Kraemer, regional sales manager, St. Paul, Minn.; Jack W. Lindsey, regional sales manager, Shreveport, La.; William E. Lane, district sales manager, St. Paul, Minn.; Robert A. Hauerman, district sales manager, Briarcliff Manor, N.Y.; Alexander McBride, district sales manager, Kansas City, Mo.; Harold Hoffman, district sales manager, Shreveport, La.; Basil Surgent, district sales manager, Baltimore, Md.; Melvin Kartchner, manager of mining operations, Carlsbad, N.M.; William Lawhon, chemical plant general foreman, Carlsbad, N.M.; James Patrick, manager of minerals planning, Bartow, Fla., and Harry M. Feigin, administrative manager, Bartow, Fla.

A dinner with foreign diplomats in Washington, D.C., and a meeting with U.S. Department of State foreign affairs experts precedes the trip.

You'll get faster, uniform, trouble-free bag closing with the New Improved Bemis Sewing Machine Pedestal (with Union Special Head)



The NEW Improved Bemis Sewing Machine Pedestal is a development of Bemis Packaging Service . . . "Customer Center for Sewing Equipment."



Here's why...

❶ The Bemis E-Xpeditor Guide forms the bag top and guides it into the sewing unit at a predetermined height so the closure is *always* straight and uniform. And it does this *faster* than you would do it otherwise . . . so, *speeds production.* ❷ The Bemis Micro-sensitive Actuator automatically starts the sewing operation when the bag touches the actuator. No misses . . . no false starts . . . no unnecessary stops. In short—"No bag . . . no sew." ❸ The Bemis Automatic Mechanical Clipper cuts the thread chain at exactly the right place every time . . . thus, saves thread.

Still Other Important Benefits of the New Improved Bemis Sewing Machine Pedestal

● The sewing head is easily synchronized with the conveyor through a variable speed sheave; proper tension is maintained. ● The sewing head is quickly and easily adjusted to varying bag heights. ● A portable frame is available for positioning the machine in different working areas.

Ask your Bemis Man for the complete story; it will pay you.

GENERAL OFFICES—
408 Pine St., Box 100, St. Louis 2
Sales Offices in Principal Cities

Where flexible packaging ideas are born

Castro Followers Seize Cuban Armour Plant

HAVANA, CUBA — Appropriation of the $500,000 Armour & Co. fertilizer plant by the Castro regime in Cuba has been reported. The plant, located in Matanzas Province, was seized on July 16 by armed militiamen without any specific authorization, according to reports from Havana. It was said to be the first such seizure since Premier Fidel Castro's cabinet authorized the expropriation of all U.S. interests in Cuba. Company officials were not informed about which government decree was applied.

In addition to the plant, the worker militiamen also took over the company's private dock facilities and heavy equipment.

Why do toxicant manufacturers strongly recommend Pikes Peak Clay?

Pikes Peak Clay is endowed with an ideal pH of 5, making it the most compatible carrier for organic phosphate formulas known today. Available in sizes from 325 mesh up to ½", Pikes Peak Clay boasts exceptionally low moisture content that far exceeds normal performance standards of other carriers.

Pikes Peak Clay has remarkably free flowability and is the perfect answer for concentrates, for adjusting bulk density, or fluffing field strength dusts. Use just this one carrier—highly absorbent and less hydroscopic—for both organic phosphates and hydrocarbons. So simple . . . you buy *one* carrier, you store *one* carrier, you use just *one* carrier!

Write today for a sample of Pikes Peak Clay for laboratory testing. Faster still, call GRaceland 7-3071 in Chicago.

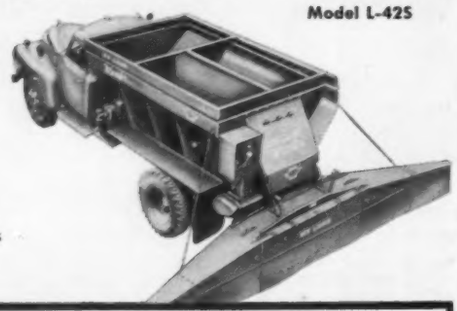
GRC GENERAL REDUCTION COMPANY
1820 ROSCOE STREET • CHICAGO 13, ILLINOIS

Accurately Blends and Spreads 3 Fertilizers at Once!

NEW LEADER MOBILE BLENDER

Model L-425

- Lets you offer mixed analysis at lower, bulk rates!
- 3 Separate compartments!
- 36" Conveyor synchronized to speed of truck by drive shaft drive!
- 7.0 H.P. Engine drives Twin Spinners!



DEMAND FOR CUSTOM SPREADING IS GROWING

More and more farmers want the convenience of a bulk spreading service. It saves them time, equipment and maintenance expense *plus*, up to $4–$8 per acre over bagged goods. Let us help you get started in business with "New Leader".

MAIL TODAY
HIGHWAY EQUIPMENT COMPANY
6828 D Ave. N. W. Cedar Rapids, Iowa

NAME.....
ADDRESS.....
TOWN.....STATE.....
☐ Farmer ☐ Operator ☐ Student

Mail coupon for L-425 literature and a copy of "Your Land Is Different" a booklet designed to help you sell more bulk fertilizer.

LEASING

Continued from page 9

edy for ailments of business. There is one major factor cited as the main disadvantage of leasing: at the end of the lease term a company does not own the equipment.

This is a fact. Whether it is a disadvantage, however, depends on actual cases. We have just seen one case where **not owning** was an advantage. This is because the company earned more profits through not owning than by owning its equipment. But in all cases where not owning will yield greater profits than owning, leasing is an advantage.

Not owning the equipment at the end of the lease term is a disadvantage only under one possibility: if the used equipment at the end of the lease is worth more than the additional profits earned as a result of leasing. This is a simple test and one which can generally be calculated without too much difficulty. Normally, because of the rate of obsolescence this is not the case.

Thus, to take the example we have just analyzed, is it likely that at the end of 10 years the equipment would be worth 106, 63 or 59% of the original cost? Hardly. Even if the figures were half of these, the firm would be far ahead. The experience of most companies in all industries bears this out.

There are three types of companies which will **not** find leasing advantageous.

1. The company which has all the working capital it needs, and which does not require any newer equipment. For such a company it would be foolish to pay a leasing company for use of capital (in the form of equipment) if neither the capital nor the equipment is needed.

2. Companies which earn less than 10% on working capital, **before taxes,** should not lease. Incidentally, this is not 10% on total investment. This is 10% on working capital **before taxes,** or less than 4.8% on working capital **after taxes.** It doesn't pay for such a company to pay a leasing company for use of outside capital.

3. Finally, marginal companies shouldn't lease. No leasing company will lease equipment to any company if the value of the equipment is greater than (at most) 50% of the company's net worth. This is a rule of thumb, but fairly accurate.

Within these limits, leasing has blossomed all over the map, and for many companies leasing has provided a golden opportunity to spurt ahead in sales and profits.

How Leasing Works

A company wishing to lease equipment contacts a leasing firm and submits an application describing itself, its financial position, and naming the equipment it wishes to obtain. The company selects the supplier it wishes and arranges whatever price it can negotiate.

If the company qualifies, the process of delivering the equipment starts the day the papers are signed. Lease payments start when the equipment has been delivered.

Length of Term

Leasing is long-term. Normally it ranges from three to 10 years, depending on the company and the size of the lease. Most leases fall between three and five years. Payments can be either equal monthly payments or tailored to any preference of the user and adjusted to any accounting system. Renewal options are available for one or more years.

Cost

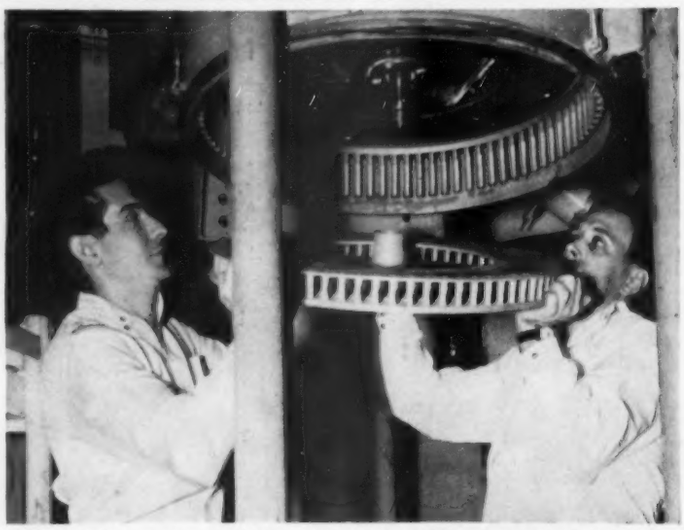
The cost is the original price of the equipment, plus a small leasing charge. The entire cost is paid in the original leasing term. Renewal options are standard and are available at very low cost.

Types of Equipment

All types of equipment can be leased under a single master lease and covered by a single monthly lease payment.

Purchase Options

Purchase options are available, but are not recommended, according to Nationwide Leasing Co. The reason is that purchase options can be interpreted by the Internal Revenue Department as converting a leasing agreement into a conditional sales contract. The effect of such an interpretation is to cost the user the benefit of deducting his full leasing charges as an operating expense.



ENTOLETER, INC., a subsidiary of American Manufacturing Co., Inc., has announced a new centrifugal mixer designed to help pesticide formulating plants step up production. According to the company, the Entoleter mixer can closely control over the fineness and intensity of dispersion of the toxicants as it is blended with approximately 98% inert ingredients. The company says the unit achieves these control results by the variable factors of "rotor speed" and "impact velocity." The impact mills apply extreme energy to the blend through the use of centrifugal force which hurls the pre-blend against a series of impactors where the force of impact performs both the desired particle size reduction and intimate dispersion of the end product. The company is offering further information from its offices at P O. Box 904, New Haven, Conn.

LOSSES

Continued from page 5

of about 2.5% more nitrogen loss in the granular plants as compared to the batch mixing operations.

Under similar conditions the TVA type ammoniator would possibly show a slightly higher efficiency than the batch mixer.

Apparently, the operators of granulation units anticipate higher nitrogen losses because most companies reported allowances in their formulas which, on the average, amounted to about 3.4% of the total nitrogen guarantee as an anticipated loss. This leaves only 1.5% nitrogen loss that is unintentional and, to a large measure, unexplained.

Based on the reports of companies cooperating in the in-plant shrinkage survey it would seem that dust losses contributed only a minor part to the over-all material loss in granular plants as compared to non-granular operations. The basis for this conclusion is found in the figures pertaining to phosphates and potash. Both of these plant foods must be lost from the dryers, ammoniators and coolers as dust. In non-granular plants the over-all loss in phosphate was 2.74% and potash was 2.15%. In the granular plants phosphate losses amounted to 2.85% and potash losses 2.54%. From this, it is quite apparent that the major problem in the granular plant centers around nitrogen losses —largely as ammonia, smoke and fumes.

It should be emphasized that there is a great deal of variation between plants and companies, particularly with respect to nitrogen recovery. Some of these differences may be due to variations in over-all efficiency of operation, but probably more of it is due to differences in formulating policies, i.e., the use of higher percentages of anhydrous ammonia versus solutions and solids—and higher ammoniation rates on the phosphatic materials.

It must be expected that the phosphate losses will exceed the potash losses to some extent because, in addition to handling and dust losses on phosphates, there is the additional possibility of conversion of available P_2O_5 to citrate insoluble forms. Apparently, there is slightly more reversion in the plants producing pulverized fertilizers than in the granular plants, but the difference is relatively insignificant. About .3% to .5% of the P_2O_5 loss is due to reversion.

With the exception of nitrogen losses at the ammoniator, substantially all of the shrinkage at the various points of manufacture is in the magnitude of a fraction of a percent. However, these small fractions can add up to a significant cost.

Plants producing granular fertilizers lose from 4% to 6% of the nitrogen; 2 to 4% of the phosphate, and 2 to 3½% of the potash in-put; whereas, plants producing non-granular fertilizer lose from 1½ to 3% of their nitrogen; 2 to 3% phosphate and 2 to 3% of the potash in-put.

Actually, granulation in this country is still comparatively new to most fertilizer manufacturers, and it can be expected that the more complicated a process becomes the more opportunity for shrinkage. . . . However, there is room for improvement, particularly in nitrogen recovery in the granular plants. Since the fertilizer industry is highly competitive, and no company can afford to overlook losses in any magnitude—the industry will show an over-all improvement.

Appointment by Stepan Announced

CHICAGO—William S. Rhoads has been appointed sales manager of the newly-formed industrial chemicals division of Stepan Chemical Co. This promotion is a part of the corporate reorganization going on at Stepan.

William S. Rhoads

Mr. Rhoads will be headquartered at Stepan's new $1,000,000 Administrative and Research Center at Northfield, Ill. He was formerly Eastern sales manager for Stepan.

Products of the industrial chemicals division, are manufactured at plants in Chicago, Millsdale, Ill., and Maywood, N.J.

Promoted by IMC

SKOKIE, ILL.—International Minerals & Chemical Corp. has promoted John M. Maschoff, Jr., to district sales manager of its plant food division, with headquarters at Winston-Salem, N.C.

Mr. Maschoff succeeds John F. Carroll, who retires Oct. 31 after 42 years service with IMC.

For the past two years, Mr. Maschoff has been sales supervisor at Winston-Salem, and previously was sales representative and credit manager at Tupelo, Miss., and Florence, Ala. He joined IMC in 1954.

Monsanto Toxicologist

ST. LOUIS — The appointment of William H. Hunt of North Plainfield, N.J., as toxicologist for Monsanto Chemical Co. was announced by Dr. R. Emmet Kelly, director of Monsanto's medical department.

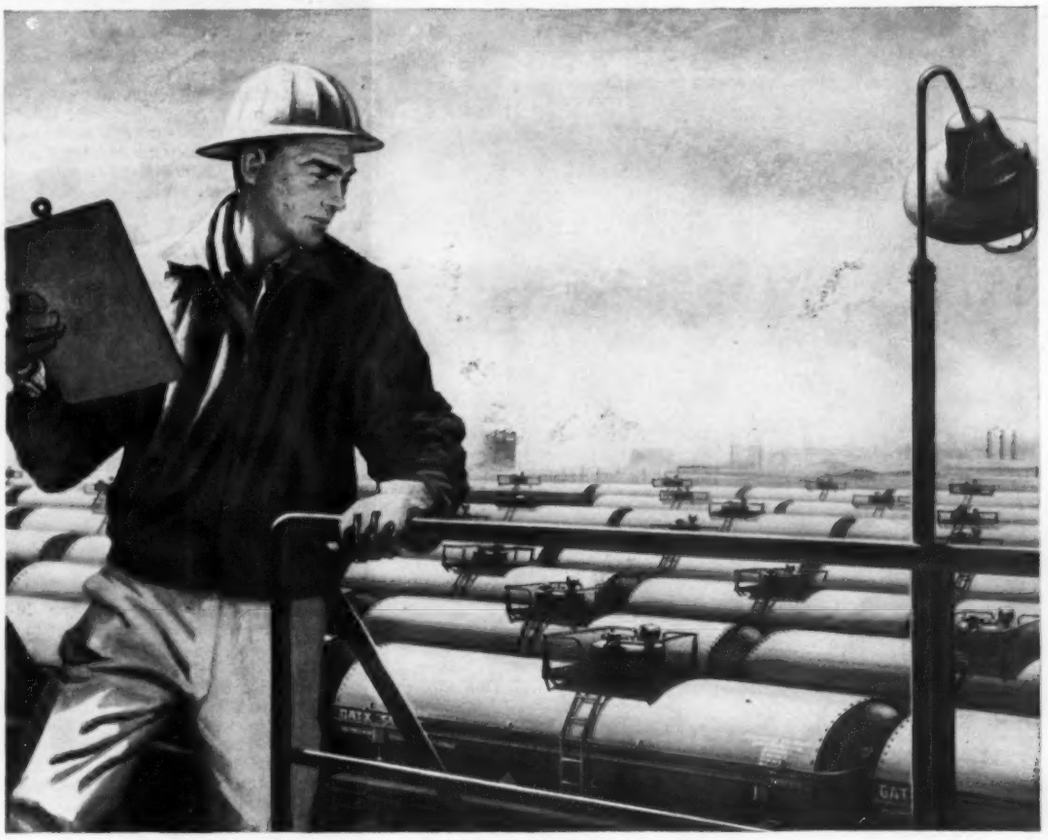
Sales Gain Reported

LOS ANGELES, CAL. — Net income of American Potash & Chemical Corp. for the six months ended June 30, 1960 totalled $2,621,306 compared with $2,539,748 for the corresponding period of 1959, Peter Colefax, president, has announced.

TVA

Continued from page 1

from the exhaust gases. The phosphoric acid is fed to the scrubber to absorb the ammonia, and the solution is fed to the preneutralizer. A recycle ratio of about 3 to 1 is required for control of granulation. Physical properties of the closely sized granular product are excellent," Mr. Young concluded.



Rides Herd on the "Cars"

He keeps tabs on the Phillips fleet of ammonia and nitrogen solution tank cars. He's the man who "pulls those extra cars out of the hat" when they are needed to handle an unexpected rush of business. Many of our customers manufacturing fertilizer have been pleasantly surprised at how quickly these extra tank cars are rounded up.

Actually our "magic hat" is the world's largest fleet of nitrogen-hauling tank cars. Through the use of strategically located bulk storage facilities and tank car pools, we are prepared to rush deliveries of those desperately needed cars that you hadn't figured on before the season began.

The assurance of an adequate supply—even to handle unforeseen business—is just one of the many ways in which Phillips can serve you. For example, Phillips will assist in sales meetings for your salesmen and dealers . . . compute cost-cutting formulations on its electronic computer . . . and, of course, supply you with high quality Nitrogen Solutions, Anhydrous Ammonia, Ammonium Nitrate, Ammonium Sulfate, and Triple Super phosphate. For complete details contact the nearest office listed below.

"Good name to grow by"

PHILLIPS 66

PHILLIPS PETROLEUM COMPANY, Bartlesville, Oklahoma

SALES OFFICES:

AMARILLO, TEX.—*First Nat'l Bank Bldg.*
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BARTLESVILLE, OKLA.—*Adams Building*
CHICAGO, ILL.—*7 South Dearborn St.*
COLUMBUS, OHIO—*395 E. Broad St.*
DENVER, COLO.—*1375 Kearney St.*
DES MOINES, IOWA—*6th Floor, Hubbell Bldg.*
HOUSTON, TEX.—*6910 Fannin Street*
INDIANAPOLIS, IND.—*3839 Meadows Drive*
KANSAS CITY, MO.—*201 E. Armour Blvd.*
MAPLEWOOD, N. J.—*2075 Millburn Ave.*
MINNEAPOLIS, MINN.—*215 South 11th St.*
OMAHA, NEB.—*3212 Dodge St.*
PASADENA, CALIF.—*317 N. Lake Ave.*
RALEIGH, N. C.—*401 Oberlin Road*
SALT LAKE CITY, UTAH—*68 South Main*
SPOKANE, WASH.—*521 E. Sprague*
ST. LOUIS, MO.—*4251 Lindell Blvd.*
TAMPA, FLA.—*3737 Neptune St.*
TULSA, OKLA.—*1708 Utica Square*
WICHITA, KAN.—*501 KFH Building*

INDUSTRY PERSONNEL NEWS

Dorr-Oliver Assignments

STAMFORD, CONN.—A series of reassignments in the top-level organization of Dorr-Oliver, Inc., directed toward centralization of related functions, was announced by Lloyd R. Boling, president of the corporation.

William J. Fox, now vice president—engineering, assumed the newly created post of vice president—domestic operations. He will have overall responsibility for the equipment sales, engineering and production activities carried on by the parent company.

Douglas C. Reybold assumed responsibility for the research, development, legal and patent functions.

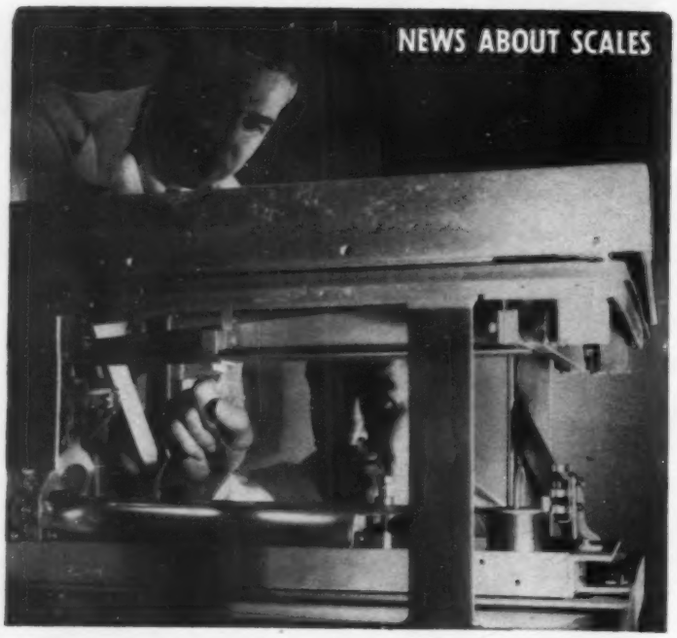
H. J. Talbot becomes managing director—Europe. Mr. Talbot is managing director of Dorr-Oliver Co., Ltd., the D-O British subsidiary. G. E. A. Schroth, managing director of Dorr-Oliver N.V., the Netherlands subsidiary, will be deputy director—Europe.

The company has also announced a number of promotions and new assignments in engineering.

Harry E. Lundberg has been named director of engineering, replacing Glenn O. Wilson, who has been appointed to the newly created post of director of technical coordination.

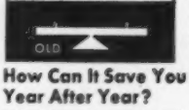
Jack S. Chasteen has replaced Mr. Lundberg as manager of filtration engineering. Charles A. Schreiber has replaced Mr. Chasteen as manager of engineering coordination.

The general equipment engineering division has been split into two units: Russell C. Raynor heads the new sedimentation engineering division and Philip B. Booth heads the reorganized general equipment engineering division. William A. Hirschfield has replaced Mr. Booth as manager of Fluo-Solids engineering.



How do they build unvarying accuracy into this remarkable new kind of weighing instrument?

For 7,000 years men have employed the multi-part pivot balance to compare weights. As the parts of their pivot joints wore, the problem of retaining accuracy became more and more acute. Then in 1956 the United States issued a patent for a "Thayer Flexure Plate" Leverage System. A team of engineers and businessmen, aware of industrys great cumulative loss of materials in weighing operations, had devised a revolutionary new scale. Knife-edge pivots that progressively wear and change were replaced by Thayer Flexure Plates that move only .001", yet accurately reflect the minutest changes in weight. This *firmly joined* lever withstands shocks and vibrations indefinitely. Dirt and dust are no longer a problem.



Thayer guarantees this leverage system accurate for the life of the scale.

How Can It Save You Money Year After Year?

Working in conjunction with straight electrical controls, it forms the most reliable, low maintenance system ever devised to control processing or materials handling *by weight*. Literature on its application to filling, batching and checkweighing operations is available on request.

THAYER SCALE

AUTOWEIGHTION SYSTEMS FOR FILLING BATCHING AND CHECKWEIGHING

THAYER SCALE CORP. THAYER PARK PEMBROKE, MASS.

A Subsidiary of SUNDSTRAND CORPORATION

Engineering Positions

LOS ANGELES — Appointment of R. E. Kendall to the newly-created position of engineering manager at the U.S. Borax & Chemical Corp. mine and processing plants at Boron, Cal., was announced by Dr. D. S. Taylor, vice president in charge of the technical department.

R. E. Kendall

Dr. Taylor said Mr. Kendall was employed in 1954 as a planning engineer to make a feasibility study for proposed open-pit mining at Boron. In 1956, when open-pit stripping started at Boron, Mr. Kendall was named assistant mine superintendent, a position he has held until his recent promotion.

Prior to joining U.S. Borax, he was employed by Dayton Consolidated Mines Co., Virginia City, Nev.; Resurrection Mining Co., Leadville, Colo., and Isbell Construction Co., Leviathan Mine, Cal.

Charles Lester Friedmann has joined U.S. Borax as a senior process engineer at the company's Boron operation.

Mr. Friedmann formerly was associated with Titanium Metals Corp. of America, Henderson, Nev., as a production supervisor.

●

Named Manager

CHICAGO—International Minerals & Chemical Corp. has promoted Sinclair B. McCoy to manager of sales services for the materials department of the agricultural chemicals division—sales.

Sinclair B. McCoy

Mr. McCoy, former potash product manager, will be responsible for handling administrative details of the materials department, operation of the customer service department, and the duties formerly handled by product managers of potash and phosphate.

A 33-year veteran with IMC, Mr. McCoy started in the transportation department in Atlanta as a clerk and rose to general traffic manager. In 1950 he joined the potash division as assistant to the vice president and subsequently was sales manager of agricultural potash.

●

New Grace Manager

BALTIMORE, MD. — Robert H. Linderman has joined W. R. Grace & Co. Davison chemical division as manager of phosphate rock sales and long range planning in agricultural chemicals, announced D. N. Hauseman, Davison vice president.

R. H. Linderman

Mr. Linderman was formerly product manager, phosphate rock, for International Minerals & Chemical Corp., Skokie, Ill.

Originally from Lake Wales, Fla., Mr. Linderman was graduated from Auburn University, Auburn, Ala., with a degree in chemical engineering.

●

Moved to Los Angeles

CATASAUQUA, PA.—The transfer of James J. Nork from its San Francisco to its Los Angeles district office has been announced here by Fuller Co. Mr. Nork, formerly a service engineer, will be concerned both with sales and service of Fuller equipment.

G.L.F. Division Manager

ITHACA, N.Y. — John R. Porter, director of the plant food and seed division, Farm Bureau Service Co. of Iowa, will become manager of G.L.F. soil building division when John C. Crissey retires Dec. 31.

Mr. Crissey, soil building division manager since 1941, joined G.L.F. in 1925. He is president and a director of Fertilizer Manufacturing Cooperative, Inc., Baltimore, in which G.L.F. is an investor. He is a former director of the National Plant Food Institute.

Mr. Porter headed fertilizer operations of the Iowa company since 1957. He joined the organization in 1949 and held managerial positions in its retail system before moving to the plant food division in 1954.

●

New Raymond Salesman

MIDDLETOWN, OHIO — Fitzhugh Prescott recently joined Raymond Bag Corp., Middletown, as salesman in the Midwestern district.

Fitzhugh Prescott

He previously represented International Paper Co., Bag Pak division, and for the past several years, McLouth Steel Corp., Detroit, Mich.

Mr. Prescott's headquarters are in Detroit, Mich., and he will represent Raymond in Michigan, northern Indiana, and northwestern Ohio.

●

Appointed Technical Head

MONTREAL — Dr. A. W. Birnie has been appointed technical manager of the agricultural chemicals division of Canadian Industries, Ltd. He replaces K. A. Shantz who is now the division's production manager.

Dr. A. W. Birnie

Born in Brampton, Ont., Dr. Birnie is a science graduate from the University of Manitoba and holds a Ph.D. degree from the University of Toronto. He joined C-I-L in 1946 as a research chemist at the company's central research laboratory at McMasterville, Que., and has held various administrative posts with C-I-L's research department and textile fibers division.

●

New District, Manager

RICHMOND, CAL. — C. E. Cody, western regional manager for the California Spray-Chemical Corp., recently announced the establishment of a new sales district comprising the State of Hawaii, effective June 16. This area was formerly in Calspray's Northern California-Nevada market territory.

Manager of the new district is Robert Uttermohlen, formerly a district agronomist for Calspray in Arizona and New Mexico. Mr. Uttermohlen is a graduate of Ohio State University and received both bachelor's and master's degrees in agronomy there.

●

Joins Wheelabrator

MISHAWAKA, IND. — Willard P. Burdakin has joined Wheelabrator Corp., dust and fume control division, Mishawaka, and has been assisgned to a seven-state territory including North Carolina, South Carolina, Georgia, Tennessee, Mississippi, Alabama and Florida where he will serve as sales engineer, operating from Wheelabrator's Birmingham office.

Prior to joining Wheelabrator, Mr. Burdakin spent five years with the Koppers Co., Inc., metal products division.

PLANT

Continued from page 6

will house offices and a store, and will measure 36 by 100 ft. and will be 45 ft. high.

"As yet we haven't done much advertising except a few newspaper ads now and then," said Mr. Dutschke. "This year we may go into some direct mail. Our biggest advertising right now comes from satisfied farmers who tell their friends what our fertilizer has done to produce big crops. That's a mighty important type of advertising, we think."

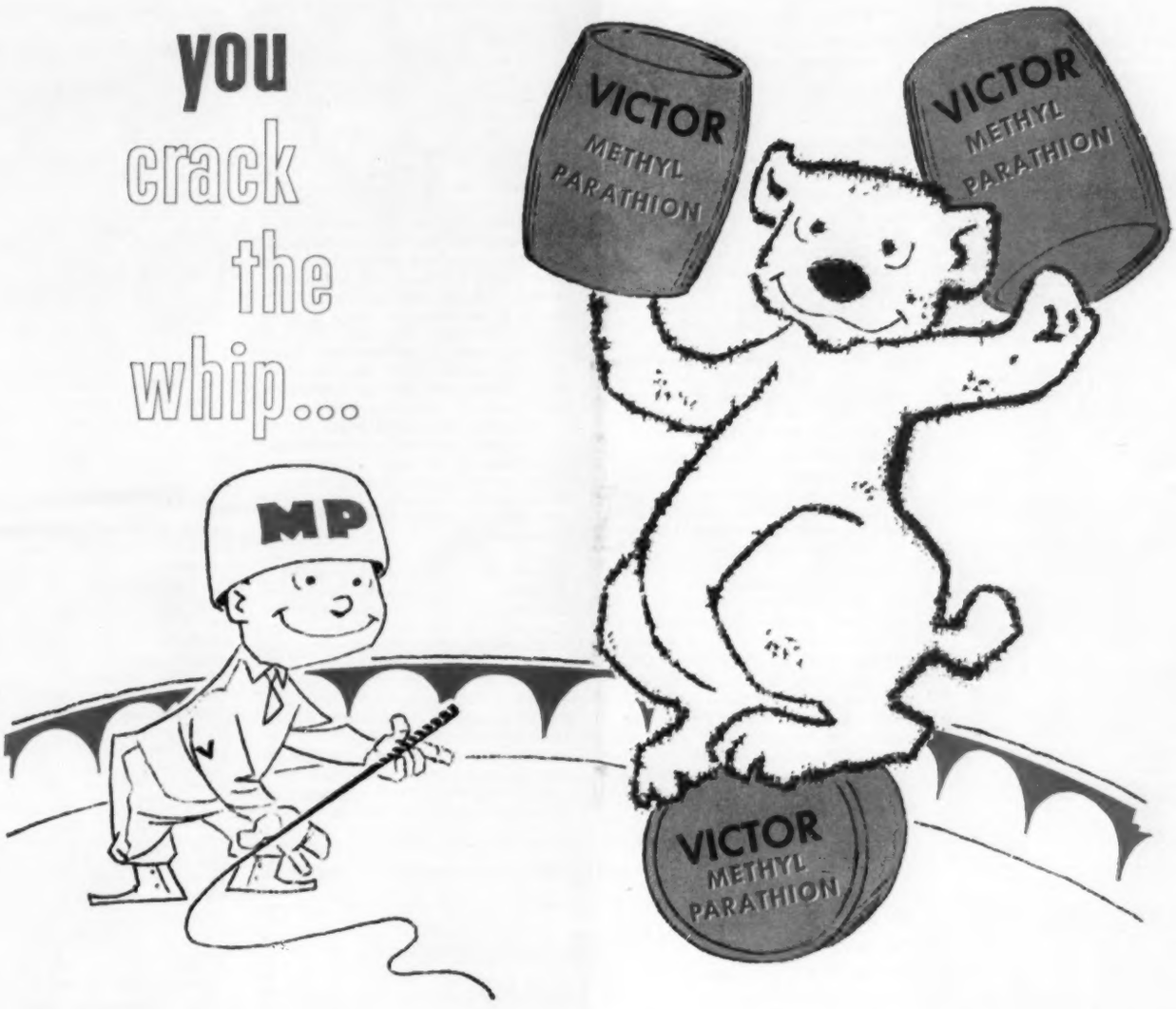
The firm does not spread bulk fertilizer. However, the management has arrangements with two custom spreaders in the area who will spread at the rate of $2 a ton. A bulk fertilizer load out section at the rear of the plant makes it easy for trucks to get in and out. Bag fertilizer load outs, too, can be made at other locations, while bulk is being loaded at another.

"We are doing business within a radius of about 50 miles," states Mr. Dutschke, "and we have about 1,000 customers. We try to cultivate the farmers who are close to us. By working with them to get bigger crops for the money they invest, we figure we come out better in the long run, rather than trying to work farther out with a dealer setup. For the present, at least."

Texas Gulf Sulphur Names General Manager

HOUSTON, TEXAS — Ira E. McKeever has been appointed general manager of sulphur operations of Texas Gulf Sulphur Co., Fred M. Nelson, chairman, has announced. Mr. McKeever, who will be headquartered at Newgulf, Texas, will have direct charge of sulphur operations at all locations in the Gulf Coast region. In his new position, he will act under direction of and will report to Hugh W. Strickland.

you crack the whip...



VICTOR bears down on delivery!

Specify Victor and you always have adequate supplies of sludge-free methyl parathion on hand. You will get fast, dependable delivery from any of ten strategic locations. Formulate with Victor M.P.—the technical methyl parathion that spells sudden death to boll weevils, aphids, and spider mites when you add it to your product.

For further information, write to: Victor Chemical Works, Division of Stauffer Chemical Company, Dept. C-8, 155 N. Wacker Drive, Chicago 6, Ill.

VICTOR
Dependable Name in Chemicals
For 62 Years
Division of Stauffer Chemical Company

Strict Budgeting a Boon to Business Planning for Year

By Paul Sage

A business budget, unlike most governmental budgets, does not have to be restrictive. While it should be sound and every management decision directed toward meeting the estimated figures, a budget should not be allowed to hamstring operational and managerial flexibility, the one advantage a smaller business usually has over its larger competitors. The profit objective, not the budget, must remain King.

WHEN Victor Borge announced plans a few years ago for staging a one-man Broadway show, friends told him that he was as mad as another Dane named Hamlet. . . . he would fold within a week, they said. But the musician-comic went ahead, polished his act, engaged a theater and opened to rave reviews that helped the show to run for two profitable years.

Millions of small businessmen think they also can run a one-man show and make it pay. Some do, of course, but for every one who does, another sinks into a quagmire of debt and disappointment. Government statistics show that last year the death rate almost equaled the birth rate of small businesses* in the U.S., and the odds **against** success are increasing all the time—especially for the little fellow who insists upon flying into the competitive gale of the nation's economy by the seat of his pants.

While no businessman, large or small, has to be told twice that profit margins are being squeezed in a wage-cost vise, most small businessmen tend to dismiss as "a lot of foolishness" the modern management techniques that could give them the tight control over their operations that is needed today for survival.

Take budgeting, for example. It is nothing more than hard-headed financial planning on an organized basis, and studies of thousands of sick, dying and dead companies prove that a budget is an invaluable weapon in **any** manager's constant battle for operating economies and higher profits. Yet, only about one third of the small businessmen in the country use a budget. Why? Because of widespread misconceptions that budgeting . . .

- **Is a complex process**
- **Increases accounting costs substantially**
- **Restricts management decisions**
- **Is nothing more than a "guessing game" anyway**

Budgeting is **not** a complex process. It simply is a sensible estimate of anticipated costs and expenses for a certain period of time. At the end of that period actual costs and expenses are tabulated and compared with budgeted amounts. That's all there is to it. The smaller the business, the simpler the budget. And by estimating, then comparing all elements of income, cost and expense, a small businessman can see what it would take to improve performance; can identify waste and inefficiencies; can foresee working capital needs, and can plan intelligently for growth. In short, he has control. He knows what he is doing and where he is going. And this is the case, no matter what his business may be.

It is true that there is some added expense when a budget is installed. Help may be needed from a certified public accountant in drawing it up, and since budgeting cannot run ahead of the accounting system used, changes may have to be made in the accounts to provide more detailed data on which to base estimates. Too, actual and budgeted amounts must be compared and deviations analyzed.

All of this costs a little more, but experience shows that in the great majority of cases increased profits resulting from s o u n d budgeting greatly exceed the slight added administrative costs. The budget that does not more than pay its own way is the exception and should probably be revised or discarded.

If an expenditure in excess of the budget will net a profit that otherwise might be missed, the expenditure is, of course, justified. An analysis of the deviation at the end of the budget period will explain why it was justified, which shows how budgeting provides a base for evaluating the probable results of decisions before they are made and the actual results after they are made.

To the extent that the actual results of the operation of a business are seldom exactly as budgeted, budgeting **is** something of a "guessing game." So why the bother of estimating? The blessing of a budget is that it **forces** planning. Plans must be made in detail. Management must take a critical look at what is being done, and this is constructive because even in the smallest business, operated under the sharp eye of the boss, costly methods and habits frequently develop that may have been useful at one time but could be done away with now. Too, the fact that a budget is not being met raises questions as to why and what can be done. These arise during the budget period, before it is too late to call it anything but a bad year. Action can be taken in time to correct whatever might be wrong.

As a rule, a simple budget is the best budget for small businessmen who have not learned the wonders of budgeting. Too much detail at first can be confusing. It may not even be needed. So start slowly. Excellent direction in the preparation of a trial budget is usually obtained when the familiarity of the company bookkeeper is pooled with the detached objectivity of an independent CPA. Without too much difficulty these two should be able to outline a workable budget if given the necessary foundation: a sound sales forecast.

Sales is the key factor in budgeting. The sales budget must be a realistic estimate of what will be sold. Wishful thinking is fatal. Estimates should be based on past experience and planned changes, such as the addition of a new product, and correlated with a "guesstimate" of business activity. Several indexes usually published for local areas can prove valuable for this: population trends, bank deposits, personal income and employment statistics. Note the trend in these bellwethers and use them as guides in formulating a sales forecast. Most customer-service enterprises, for example, would probably be unrealistic in budgeting an increase in sales if the population in an area were dwindling and unemployment were increasing.

Next, production and inventories are forecast. On the basis of the sales forecast, will inventories have to be increased, decreased or held at present levels? The answer to this will determine how much cash will have to be tied up in inventory, and so on. The budget is built up from the bottom. Budgeted sales and production figures are fed to all persons responsible for a particular element of cost or expense. Each employee submits his own budget, and the individual budgets, whether there be two, twenty or fiifty, are then integrated to form the over-all budget. Later, actual costs are classified and matched with the budgeted figures, with sharp differences given thorough investigation. The entire process is repeated, and before long, management becomes accustomed to having accurate advance notice of substantially all costs.

The well-budgeted businessman has a much firmer grip on the wheel than his less-fortunate competitor, and trying out a budget involves very little risk. Weighing the vast potential benefits against the comparatively meager cost of installation, it is a must for every intelligent businessman.

*The term "small business" in this article refers to companies with an annual sales volume of less than $5 million.

EDITOR'S NOTE: Paul Sage, CPA, conducts an independent accounting practice in New York, and is a member of the accounting faculty of Adelphi College. He is an editor of the Journal of Taxation and contributes articles on accounting to The Journal of Accountancy. The author is also a member of the American Institute of Certified Public Accountants and the New York State Society of Certified Public Accountants.

Croplife presents his thoughts on budgeting as a service to the pesticide and fertilizer manufacturers of the U.S.

ANIMAL FAT IN PESTICIDES?

Botanists at the University of Arizona believe that further studies will confirm the results of experiments using tallow as a base for a "carrier" in the production of commercial pesticides and if so the Agricultural chemical industry might become a large user of tallow.

The botanists state that a carrier for commercial pesticides must have all of the following qualifications: It must be a solvent or emulsifier, a wetting a g e n t, non-corrosive to spraying machinery, a substance of low volatility and one that is relatively plentiful and inexpensive. Sugar esters of fatty acids have all of these qualifications and are now being made commercially from tallow, they say.

Officers of the National Renderers Assn. point to the large existing stocks of tallow, with increased production promised, as evidence that the chemical industry can proceed with the development of the carrier without fear of shortages.

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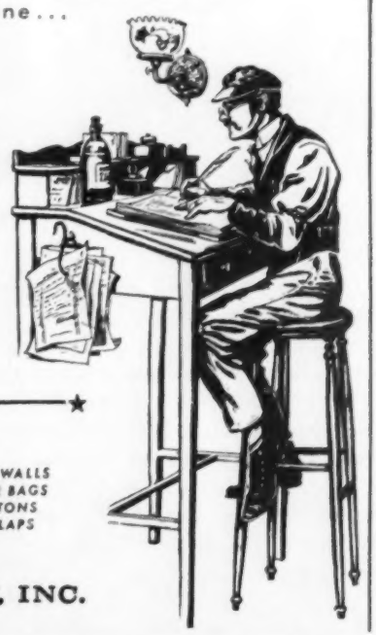

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-- TO A REGULAR UNION MEETING!
ARBITRATOR'S DECISION
NO - NOT WHEN PURPOSE OF MEETING IS TO DISCUSS UNION AFFAIRS.
Based on a 1960 New York Decision

TONNAGE REPORTS

Illinois

CHAMPAIGN, ILL.—The University of Illinois, department of agronomy, reported a 17% increase in fertilizer sales during 1959. Mixed fertilizer sales amounted to 663,138 tons compared with 544,592 tons in 1958. Nitrogen materials sold amounted to 216,272 tons and phosphate sales were 89,626, both higher than the previous year.

●

South Carolina

CLEMSON, S.C.—A 12% decrease in fertilizer sales was noted in South Carolina for the fiscal year ending June 30, 1960, reported B. D. Cloaninger, director, fertilizer inspection and analysis department, Clemson College. Total tonnages were 783,889 tons for this fiscal year and 890,302 tons for the year ending June 30, 1959.

Grade 4-12-12 was the most popular in use, with 162,740 tons sold. This represented 28% of the total tonnage used in the state.

During June, 1960, 53,388 tons were sold, compared with 47,518 tons during June of 1959.

●

Arkansas

LITTLE ROCK, ARK.—The Arkansas State Plant Board reported fertilizer sales of 362,551 tons for the fiscal year ending June 30, 1960. This figure compares with 353,132 tons sold during the previous fiscal year. Most popular material was ammonium nitrate, with 49,556 tons sold. Most popular grade was 10-20-10, with 28,708 tons sold.

Sales in Arkansas during June of this year amounted to 42,377 tons, compared with 37,568 tons sold during June of last year.

W. M. Atkinson

Stan K. Thomsen

J. O. Moseley

Charles H. Kelley

V-C Promotions

RICHMOND, VA.—Virginia-Carolina Chemical Corp. has promoted three men in its fertilizer division and another in its bag division.

W. M. Atkinson, formerly supervisor of the company's fertilizer sales offices in North Carolina, has been named assistant general sales manager. Mr. Atkinson moved to V-C's general sales department in Richmond last year.

In other fertilizer promotions, Stan K. Thomsen, formerly a V-C salesman at Estherville, Iowa, has been named assistant to the manager at the company's Fort Wayne, Ind., sales office, and J. D. Moseley, formerly a salesman out of Montgomery, Ala., is now assistant to the manager in Shreveport, La.

In the bag division, Charles H. Kelley has been promoted to assistant manager. Mr. Kelley has been a salesman, sales analyst, and sales manager for V-C since 1952.

Swift Announces Plans for New Phosphate Plant

CHICAGO—Plans for the construction of a new phosphoric acid producing plant at the Swift & Company Phosphate Center, south of Bartow, Fla., were announced on July 28 by W. F. Price, general manager of Swift's agricultural chemical division.

A contract for the construction of the plant which will double the company's production of phosphoric acid has been arranged with Dorr-Oliver Engineering Ltd. of Stamford, Conn., Mr. Price said.

Construction is expected to begin in the fall with completion in May, 1961.

Swift & Company has had phosphate mining operations in the Bartow and Fort Meade areas for a number of years and has a triple super phosphate plant in connection with its mining operations. Phosphoric acid is used in the manufacture of triple super phosphate.

"These new facilities will enable us to substantially increase the production of triple super phosphate," Mr. Price said.

"The plant will also make available liquid phosphoric acid for shipment to other centers," he added.

Hercules Appointment

WILMINGTON, DEL. — Robert Wier III recently was named assistant director of purchases for Hercules Powder Co., announced William A. Hoffman, Jr., director.

Mr. Wier, a senior buyer in Hercules' purchasing department since 1951, joined the company as a chemist at the company's Hopewell, Va., plant in 1941.

New Vice President

BERKELEY, CAL. — Howard G. Conley has been named vice president in charge of sales for the Pacific Guano Co. here. J. G. Hollingshead was named vice president in charge of purchasing and manufacturing.

(See Report on Page 2 this issue)

Production of New Sulfuric Acid By Divisions and States, 1958 and 1959

(In short tons of 100% H_2SO_4)

Division and State	1959[1]	1958
UNITED STATES, TOTAL	16,904,448	15,280,483
New England[2]	195,614	174,591
Middle Atlantic	2,457,389	2,106,096
Pennsylvania	782,239	647,972
New York and New Jersey	1,675,150	1,458,124
North Central	5,799,815	5,295,126
Illinois	1,568,644	1,219,517
Indiana	479,065	468,995
Iowa	114,429	87,351
Michigan	594,609	598,946
Ohio	767,089	607,791
Other[3]	755,578	610,518
South	8,321,868	7,883,945
Alabama	509,536	445,899
Florida	2,096,707	1,850,108
Georgia	545,578	548,195
North Carolina	149,774	139,625
South Carolina	152,241	133,748
Virginia	504,203	469,188
Kentucky and Tennessee	1,014,755	898,550
Texas	1,679,284	1,600,685
Delaware and Maryland	1,159,071	1,081,210
Louisiana	640,180	695,573
Other[4]	541,565	496,208
West	1,950,384	1,880,727
Arizona	121,823	115,815
California	959,040	875,080
Other[5]	869,121	965,894

[1]Includes data for government-owned privately operated plants.
[2]Includes data for plants located in Maine, Rhode Island, and Massachusetts for 1959 and Maine, Rhode Island, Massachusetts, and Connecticut for 1958.
[3]Includes data for plants located in Minnesota, Missouri, Wisconsin, and Kansas for 1959 and Missouri, Wisconsin, and Kansas for 1958.
[4]Includes data for plants located in West Virginia, Mississippi, Arkansas, and Oklahoma.
[5]Includes data for plants located in Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Washington, and Wyoming.

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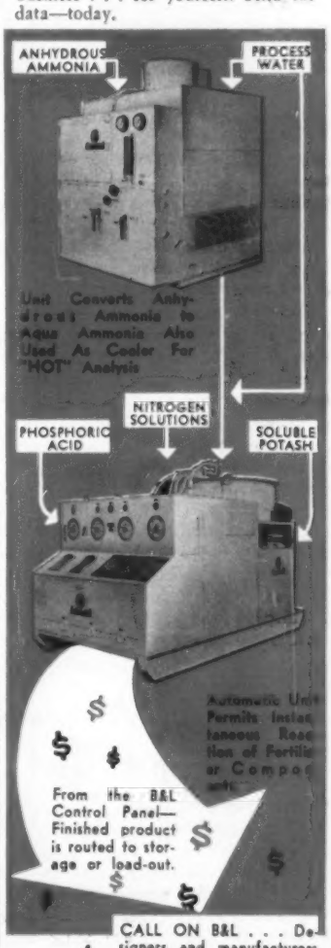
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Fertilizer Industry Safety School Classes to Convene

IT'S SCHOOL TIME again for fertilizer supervisory people! The bell is about to ring for the first of five regional fertilizer safety schools to which fertilizer industry production managers, superintendents, and other leaders are invited. Schools are located regionally to make at least one such course reasonably close to every plant in the country.

Fertilizer plant personnel in the East have the first opportunity. This school, scheduled for Aug. 10-11, will be at the Park Sheraton Hotel, New York, with the second session following at the National Safety Council headquarters, Chicago, Aug. 16-17.

In charge of the fertilizer safety training schools is W. C. Creel, of the North Carolina department of labor, who has patterned the industry schools after the highly successful sessions held in North Carolina in 1956 and 1957. He has prepared an agenda of practical balance . . . of the type that the fertilizer plant "students" may take home ideas to be put into action.

Elmer C. Perrine, of the Nitrogen Division of Allied Chemical Corp., New York, is presently chairman of the fertilizer section of the National Safety Council, and one of the principal instructors in the schools. Other instructors include well qualified men to speak on safety education, personal factors in safety, handling of liquid materials in plants, the importance of maintaining good order for safety, the organizational aspects of a safety program in the plant.

Beyond these first two schools is the Southeastern regional class on Aug. 25-27 at the Cape Fear Hotel, Wilmington, N.C., and two additional ones at Fresno, Cal., and New Orleans, La., dates and meeting places of which have not yet been announced.

A great deal has been said about the necessity of improving the plant safety record of the fertilizer industry, and here is an opportunity for putting action into the words. Both the National Plant Food Institute and the fertilizer section of NSC are hopeful that the 1960 schools will get the industry support they deserve. Here is a means close at hand by which the industry can help itself through the further education of some of its most important people . . . the plant supervisory men.

Pesticide Makers Serve Both Farmers and Public

THE IMPORTANCE of pesticidal chemicals to the general economy beyond their obvious value to farmers, was pointed out graphically in a recent talk by Roy Hansberry of the Shell Development Co., Modesto, Cal. His presentation should make all producers of these materials proud of the job they are doing, despite the attitude indicated by some unknowing outside people that the chemical industry is trying to contaminate food sources with cancer-causing substances without benefit of pre-testing.

Actually, as everyone in the trade knows, all pesticidal products must be field tested for a sufficient length of time to tell the manufacturer what crops might benefit from the product. But too many people who comprise what is loosely known as "the public" do not give this much thought, nor do they realize that in addition to the field tests, extensive toxicological tests must be made. These are conducted by consulting laboratories for the most part, and such tests safeguard not only users of the product, but the men in the manufacturing plant as well. Relatively few toxicological type accidents occur in the plant chiefly because the management exercises the kind of precautions that make safe operations possible.

Can anyone actually believe that pesticide manufacturers would knowingly put on the market any substance that would cause cancer, for example? Mr. Hansberry said that such an idea is ridiculous, and the present law setting a zero tolerance on any substance which in extremely large doses might cause cancer should allow for a "sympathetic and reasonable approach to the problem."

"There are lower limits of quantity below which no cancer can be caused . . . and the law should acknowledge this fact," he added.

Mr. Hansberry called attention to the fact that manufacturers in the agricultural chemicals industry are human beings "just like everyone else." They have no desire, he said, to feed their children poison, and therefore are just as concerned about the problem as is anyone else.

It is good business for the pesticide people to let some of these facts be known on the local level, for just about every community in every state has at least a few citizens who decry the use of pesticides and who seem to live in a perpetual state of jitters lest someone "poison" them. The trouble is, though these folks comprise but a small portion of the population, their strident voices are heard in legislative halls and their ideas are too often heeded by lawmakers.

It is difficult to counteract hysteria even with facts about pesticides, but facts are strong weapons and if directed to the right people, can do much good.

Bon Voyage, Dr. Sauchelli

BEST WISHES of the entire fertilizer manufacturing industry are accompanying Dr. Vincent Sauchelli, chemical technologist of the National Plant Food Institute, on his upcoming six-month junket to India to study that country's agriculture as related to manufacturing and agronomic aspects of phosphates. He expects to leave the U.S. about the middle of August, under auspices of the Phosphate Schene of India, a nonprofit private organization.

Although Dr. Sauchelli has been engaged in agricultural chemical pursuits for the past 45 years, and has been exceptionally prominent in the plant food trade, he is probably best known throughout the contemporary industry for his having organized and developed the fertilizer industry Round Table meeting held each fall in Washington.

Production people, particularly, are indebted to him for this enterprise which has gone a long way in breaking down former barriers among manufacturers and fostered cooperation and open discussion of mutual problems.

Upon his return to the U.S. scene in half a year, Vince will have some very interesting reports to make to our industry. Meanwhile, the trade wishes him every success in his latest travel venture.

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INDUSTRY MEETINGS

Aug. 2-3—Annual summer meeting, Ohio Pesticide Institute, Ohio Agricultural Experiment Station, Wooster.

Aug. 7-11—Rocky Mountain Conference of Entomologists, Cameron Pass, Gould, Colorado.

Aug. 10—Northeast Fertilizer Industry Safety Training School, New York.

Aug. 16-17 — Midwest Fertilizer Industry Safety Training School, Chicago.

Aug. 16-20 — Economic Entomology Workshop, Agricultural Building, University of Nevada, Reno.

Aug. 25-27—Southeast Fertilizer Industry Safety Training School, Wilmington, N.C.

Aug. 25-27—Fertilizer industry safety school for supervisors, Cape Fear Hotel, Wilmington, N.C.

Aug. 28-31—Fifty-second annual meeting, American Phytopathological Society, Green Lake, Wis.

Sept. 12-14—Eighth annual meeting and conference, Canadian Agricultural Chemicals Assn., Britannia Hotel, Lake of Bays, Muskoka, Ont., Can.

Sept. 24-26 — Western Agricultural Chemicals Assn. 31st annual meeting, Palm Springs Riviera Hotel, Palm Springs, Cal.

Sept. 29-30 — Northeast Fertilizer Conference, Hotel Hershey, Hershey, Pa.

Oct. 5-6—Southeast Fertilizer Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Oct. 17-21—National Safety Congress, 48th annual meeting. Fertilizer Section meets at Morrison Hotel, Chicago.

Nov. 2-4—Fertilizer Industry Round Table, Hotel Mayflower, Washington, D.C.

Nov. 3-4—Pacific Northwest Plant Food Assn. 1960 annual convention, Boise, Idaho.

Nov. 13-15—California Fertilizer Assn., 37th annual meeting, del Coronado Hotel, Coronado, Cal.

Nov. 14-19—Mexican Association of Insecticide and Fertilizer Manufacturers, Merida, Yucatan.

Nov. 30 — New Jersey annual fertilizer conference, Rutgers University, New Brunswick, N.J. Sponsored by Plant Food Educational Society of New Jersey.

Dec. 12-14 — North Central Weed Control Conference, Hotel Schroeder, Milwaukee, Wis. T. W. Tibbets, Department of Horticulture, University of Wisconsin, Madison, public relations committee.

1961

Jan. 5-7 — Eleventh annual convention, Agricultural Aircraft Assn., Inc., Hotel El Dorado, Fresno, Cal.

Jan. 19-20 — 14th annual Southern Farm Forum, Roosevelt Hotel, New Orleans, La.

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FDA Clears Use of Systemic Insecticide In Cattle Feed

WASHINGTON — The Food and Drug Administration has issued a food additives regulation which would authorize use of the systemic insecticide ronnel in beef cattle feed to control cattle grubs.

This is the first time that FDA clearance has been given to feed use of a systemic insecticide.

The FDA regulation, published in the July 14 Federal Register, was issued upon a petition filed by the Moorman Mfg. Co., Quincy, Ill. It provides for a maximum of 2,750 parts per million (0.275%) of the drug in feed for beef cattle for use only in the treatment of grubs.

Subsequent to the Moorman petition, the Dow Chemical Co. filed a petition asking for use in cattle feed of a maximum of 6,000 p.p.m. of ronnel, a Dow product.

CALENDAR FOR 1960-61

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28	29	30	31			

JUNE						
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Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 20c per word; minimum charge $3.00. Situations wanted, 15c a word; $2.25 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 25c per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $12 per column inch.

All Want Ads cash with order.

HELP WANTED

ADVERTISING COPYWRITER TO BEcome assistant account executive on fertilizer account. Kansas City advertising agency offers real opportunity for your present and future earnings. Send product experience, personal background and salary requirements to Ad No. 6131, Croplife, Minneapolis 40, Minn.

TECHNICAL DIRECTOR NEEDED

Southern firm in oilseed processing, agricultural chemicals and fertilizers needs well educated, experienced technical director. Engineering degree desirable. Salary commensurate with ability. Small town near city. Write, giving educational background, experience, age, family status and picture.

Address Ad No. 6139, Croplife
Minneapolis 40, Minn.

WANTED GENERAL MANAGER *for integrated* SULFURIC-PHOSPHORIC FERTILIZER PLANT *in Southwest*

Challenging opportunity with successful growing company. Degree in chemical engineering or equivalent. Process and cost control experience with proven ability for efficient management. Attractive company benefits. Write in confidence, stating educational background, experience and salary requirements. Address Ad. No. 6133, Croplife, Minneapolis 40, Minn.

HELP WANTED

SOHIO CHEMICAL COMPANY AGRONOMIST

Increased plant capacity and expanded sales territories require addition of qualified agronomist to staff of our agricultural services division. Primary emphasis on evaluation and development of fertilizer markets. Good training in crops, soils and chemistry essential. Salary commensurate with background and experience.

Send resume including major academic accomplishments, work experience and salary requirements to:

R. S. Knight
SOHIO CHEMICAL COMPANY
Box 628 Lima, Ohio

SOHIO CHEMICAL COMPANY AGRICULTURAL SALES REPRESENTATIVES AND TECHNICAL SERVICE REPRESENTATIVE

Construction of new 300/TPD plant and expansion of sales territories create need for additional agricultural sales representatives and technical service representative. Should have one to three years' experience in sales or technical service work related to: Nitrogen solutions and combination ammonia, ammonium nitrate, urea solutions, 45 and 46% urea, feed and chemical grade urea.

Please send resume including academic background, work experience, and salary requirements to:

R. S. Knight, Manager
Employee Relations Division
SOHIO CHEMICAL COMPANY
Box 628 Lima, Ohio

MACHINERY FOR SALE

FOR SALE—SPREADER, USED, SIMONsen 7-ton, two-compartment, fertilizer spreader. Excellent condition. Complete with tarp. Simonsen Mfg. Co., Quimby, Iowa.

Croplife *Want Ads... Get Results*

OUTPUT

Continued from page 2

production was 243,550 short tons.

Synthetic ammonium sulfate production was 65,078 short tons, compared with 68,683 tons for April and 89,053 tons for May, 1959.

Production of nitrogen solution at 102,916 short tons was about the same as the previous month, but some 11,110 tons more than May of 1959.

May output of nitric acid was 265,080 short tons, or slightly more than 10,000 tons less than April. The total was about 4,000 tons more than May of the previous year, however.

Phosphoric acid production was higher than both the previous month and the same month last year. The 189,947 short ton total was about 7,000 tons higher than April, and some 26,000 tons more than May of last year.

May production of sulfuric acid was 1,611,928 short tons, compared with 1,556,371 short tons for April and 1,579,127 short tons for May, 1959.

Canadian Appointment

NIAGARA FALLS, N.Y.—Cyril J. Harke, New Westminster, B.C., has been appointed to the new position of production superintendent of the Hooker Chemicals, Ltd., chlorine-caustic soda plant at North Vancouver, B.C. The announcement is made by Leslie H. Schnurstein, works manager, to whom he will report. Mr. Harke has been technical supervisor at the plant for the past year.

CHEMICAL EXECUTIVE DIES

NEW YORK—Samuel J. Cohen, 62, former president of Hardesty Chemical Co., died unexpectedly July 13 at Westport, Conn.

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